



INDeX

Programming Manual

(Level 8.0)



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Introduction

Overview

This manual covers the programming of a Lucent Technologies **INDeX** telephone switch with **Level 8.0 software**. We assume that you have experience of INDeX programming through an approved Lucent Technologies INDeX training course.

This manual breaks the major features and areas of INDeX usage into separate chapters. Each section explains a feature and the programming relating to that feature.

WARNING

The first action during any INDeX programming of an existing installation must always be to download a copy of the existing INDeX database (*see page 10*).

Before Programming:

- Ensure that you have read and fully understand the functionality of the features to program.
- Ensure that you have all the information required.
- Take time to plan and check the settings that need entering.
- Consider the effects any changes may have on other users and services.

Areas Not Covered by this Manual

This manual does not cover the following topics:

- **Installation & Maintenance:**
For information on the installation and maintenance of INDeX systems refer to the appropriate INDeX Installation and Maintenance manual.
- **INDeX Approvals:**
For the requirements of local Approvals refer to the INDeX Site Log supplied with the INDeX.
- **Engineer Reports Menu/Patches Menu:**
These menus (if present) are intended for use by Lucent Technologies engineers only.
- **Other INDeX Peripheral Equipment :**
The INDeX DECT, WOC, NOC, DRC, ACD Managers and Voice Managers all have their own Installation Manuals that cover any INDeX programming for those systems. Similarly user programmed features are covered by the appropriate user's terminal guide.

Kermit & Terminal Programs

This manual assumes that you are using Kermit V2.29b terminal software from a DOS based PC.

Kermit V2.29b is used by Lucent Technologies during INDeX product development and is the file transfer protocol built into the INDeX. It supports all programming functions including file uploads and downloads.

Kermit V2.29b software is available to accredited INDeX distributors from the INDeX web site (www.sdxplc.com).

Other VT100 compatible terminal programs can be used for INDeX programming, refer the software suppliers instructions for usage. We do not recommend the use of programs other than Kermit 2.29b for file downloads and uploads, and since a database download is the recommended first step in any major INDeX programming we cannot recommend the use of other programs for INDeX programming.

Physical Addresses

Throughout this manual we refer to physical devices in commands by entering the devices associated directory number. However in most cases you can also refer to a physical device by its physical address in the INDeX.

- **Physical Addresses:**

The physical address of a device takes the form 'cabinet number/cassette slot number/cassette channel number'. For example **1/3/20** refers to the 20th channel of the 3rd cassette in the 1st cabinet.

Programming

Connecting a PC to the INDeX

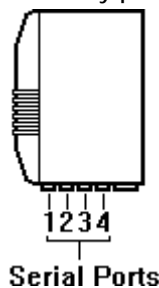
For programming you can use any terminal or PC which can emulate a DEC VT100 (for file uploads and downloads this must be Kermit V2.29b - see page 6).

The programming device must be:-

- DEC VT100 compatible
- 80 x 24 character screen
- Supports a baud rate matching the INDeX (300, 600, 1200, 2400, 4800, 9600, 19200 or 38400 baud). 9600 is the minimum recommended.
- ANSI standard cursor control sequences.
- Data transmission at 8 bit, no parity, two stop bits.

To connect a PC to the INDeX:

1. Connect a suitable serial cable (*see below*) from a PC serial port to an INDeX serial port. Note that the INDeX 100s only provides two serial ports.



2. To download or upload files you must use port 1.
 - We strongly recommend that a download of the current INDeX database is part of INDeX programming.

Serial Cable

Only Lucent Technologies supplied serial cables should be used otherwise damage to the INDeX or connected equipment may occur.

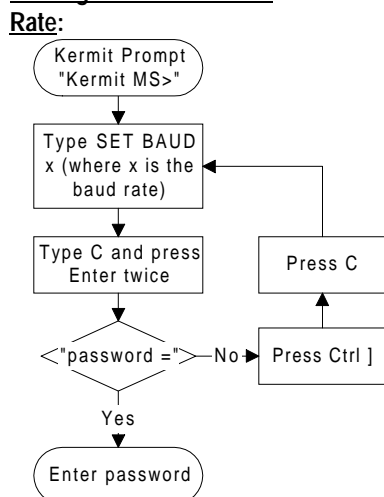
<u>INDeX</u>	<u>INDeX Signal</u>	<u>PC</u>	<u>PC</u>	<u>Modem</u>
<u>9-Pin serial</u>		<u>9-pin serial</u>	<u>25-pin serial</u>	<u>25-pin serial</u>
1*	⇒ -5V (For dongle power only)*	-	-	-
2	⇐ RXD (Receive data)	2	3	2
3	⇒ TXD (Transmit data)	3	2	3
4	⇒ +5V (For dongle power only)*	-	-	-
5*	⇔ SG (signal ground)	5	7	7

All remaining pins are not used and should not be connected.

*The dongle power connections are no longer provided on cabinets of PCS 4+.

Logging On

Finding the Correct Baud Rate:



After connecting the serial cable, you can start communications and, if successful, log on to begin programming. The password used during log on sets the database areas you can view and alter (*see page 78 & 78*).

To connect using Kermit:

1. Type **cd c:\kermit** (or the appropriate directory).
2. Type **Kermit** and press ↵. The version of Kermit should appear, followed by the Kermit prompt (*Kermit-MS>*). For uploads and downloads, check that the version is V2.29b (that version and not higher or lower).
3. At the Kermit prompt, type **set port 1** or **set port 2** to select PC serial port 1 or 2. Use **set port ?** to display help.
4. At the Kermit prompt, type **set baud 9600** or the baud rate required (Use **set baud ?** to display help information). The INDeX supports 300, 600, 1200, 2400, 4800, 9600, 19200 and 38400 baud.
5. At the Kermit prompt, type **C** (for connect) and press ↵.
6. Press ↵ again. If there is no response or a garbled response, you may need to change the baud rate being used.
7. If okay, **INDeX ADMINISTRATION AND MAINTENANCE ACCESS** and **Password = _** should appear.
 - Note the serial number shown on this screen. This is the INDeX's serial number and affects the licence keys required for some features.
8. Enter your programming password, remembering that the INDeX is case sensitive.
 - After three incorrect password entries, the INDeX locks the programming port for one hour. The other programming ports may still be used during that time.
9. If the password is okay, the INDeX displays its **Resources** screen (*see page 9*). Check that the values and information shown are as expected.
10. Press ↵ again to display the **Main Menu**.

Switching Between Kermit and INDeX Commands

You may need to issue commands to the Kermit program rather than to the INDeX. You can do this without ending the programming session.

To switch between Kermit and INDeX commands:

1. Press **Ctrl** and **]** simultaneously. Then press **C**.
2. Enter the Kermit commands required (eg. **set baud** or **set port**).
3. Type **C** and press ↵ to return to the programming session.

The Resources Screen

Immediately after a successful password entry, the INDeX displays its **Resources** screen. That screen shows you the INDeX's CPU cassette type, time, date and software level.

Once you press ↵ to display the **Main menu**, you can only return to this screen by logging off and then logging on again.

```
*** Logged into INDeX V1000 at 12:10:14 on 01-JAN-99 *** V8.0

Resources
*****

Directory numbers : 1986 available out of 10000
User Records      : 1475 available out of 1500
Group cells       : 1488 available out of 3700
Device lines used : 7%
Location          : England
Country code      : England
```

– **Directory numbers:** 10,000.

The number of available directory numbers. Directory numbers are used for trunks, users, groups and pilot numbers. They are not used for DDI numbers.

– **User records:** 1,500.

The number of users the INDeX can support. Each user record also uses a directory number for the user. User records are used for terminal users, hot desking users and ACD agent.

– **Group cells:** 3,700.

The number of group cells equates approximately to the number of groups and the number of group members.

– **Device lines used:**

The proportion of available devices supported by the CPU used. Note that this refers to the INDeX's memory capacity, its physical capacity will differ according to the types of cassettes installed.

– **Location:**

Indicates the country for which the INDeX's default device and call control settings are set.

– **Country code:**

Indicates the language for the INDeX's display characters and other settings.

Using the INDeX Programming Menus

Most INDeX programming menus consist of a list of numbered options, those options being either INDeX settings or further sub-menus.

A command line prompt appears at the base of the screen. The command line will change to reflect the input for which the INDeX is currently waiting. In most cases it will be expecting you to enter a number for the INDeX setting you want to change or the sub-menu you want to access.

This manual shows programming actions as follows:

- **Enter:**
Key a value or choice and then press the ↵ key (also called the **Enter**, **Return** or **Carriage Return** key). For many INDeX settings, pressing ↵ without entering a value will set a null-value.
- **Select:**
Key the number of a menu option and then press ↵.
- **Escape:**
Press the **Esc** key. In most cases this will cancel the current command entry or exit a sub-menu and return to the previous menu until the Main menu is reached.

Database Defaults

Each INDeX CPU is loaded with a default database appropriate to its intended country of use. Those default settings should allow almost immediate operation.

A summary of the INDeX's default settings are:

- Any trunk or terminal devices inserted into the INDeX are automatically allocated directory numbers based on the **Next terminal number** and **Next trunk number** settings (for PRI cassettes the allocation of directory numbers must be triggered manually).
- The directory numbers of trunk devices are automatically added to the **Line Group**.
- The directory numbers of terminal devices are automatically added to the **Night Service Group**.
- ARS routes outgoing calls to the **Line Group**.
- User can make national, local and emergency calls.
- Incoming calls are routed to the Operator group. Since in default that group is empty, the calls overflow to the **Night Service Group**.

Database Reset

For new CPU cassettes, a database reset is recommended to ensure that the database is clear of any transit or test settings.

To reset a database to default values:

1. Remove any device cassettes from the INDeX.
2. From the **Main Menu** select **Database Management**.
3. Select **Erase database**. Wait for the status to return from *erasing* to *idle*.
4. Reset the INDeX by either powering it off for a short period or using the **Maintenance > Reset system > SYSTEM RESET** option.
5. The INDeX will restart with a defaulted database. Note that the INDeX's serial ports will have reset to 9600 baud and its password table has also been cleared.
6. Log on again using the INDeX's default password. It then requests that you enter another password that becomes the INDeX's engineers password for future logging on (see "Passwords" on page 78).
7. The **Location** and **Country code** fields shown on the **Resources** screen (see page 9) during log on indicate the default database settings. If they are not correct for the current installation, this is the stage at which to upload the appropriate default country database for the INDeX (see page 90).
8. From the **Main Menu**, select **Directory**, then **Set up** and then **Reserved numbers**.
9. Set the **Next terminal number**, **Next trunk number** and other options to the desired values.
10. From the **Main Menu**, select **Maintenance** and then **Reset system**. Enter **DEVICE DATABASE**. This uses the values set in the step above as the base numbers for new devices added to the system.
11. Begin inserting cassettes into the INDeX.

Storing Database Changes

It is important to understand that the INDeX maintains several copies of its programming database. When switched on, it copies a backup database from FLASH memory to RAM memory and then uses the database in RAM memory to control the INDeX.

WARNING:

Remember to perform a database backup after finishing programming.

Programming changes alter the database in RAM memory. If a power loss or INDeX reset occurs, the INDeX loses the RAM database (and any changes) and reloads the RAM from the FLASH memory.

Thus it is important during INDeX programming to frequently backup the RAM database with your changes to the FLASH memory.

To backup database changes:

1. From the **Main Menu**, select **Database Management**.
2. Select **Database Backup**. The **Flash Database status** will change from *Idle* to *Backing up* during the backup process.

Database Downloads

WARNING:

On existing customer INDeXs, we strongly recommend downloading a copy of the customer's INDeX database before any programming or upgrades.

To perform a database download:

1. From the **Main Menu**, select **Database Management**.
2. Select **Database backup** and then wait for the **Flash database status** to return to **Idle**.
2. Select **Database download**. After the **Sure y/n** prompt, wait for the **#N3** response to appear.
3. Press **Ctrl** and **]** at the same time and then press **C**.
4. At the Kermit prompt, type **GET** and press **↵**.
 - a. The PC requests the **Remote Source File**. Enter **DB**.
 - b. The PC requests the **Local Destination File**. Enter a DOS file name for the downloaded database file.
5. The screen shows the progress of the database file transfer. The PC beeps on completion of the file transfer.
6. Enter **FIN** and wait a few seconds until the Kermit prompt reappears.
 - If the prompt does not appear, press **↵** several times until "Unable to tell host that session has finished" appears.
7. Press **C** and then **↵** to reconnect to the INDeX.
8. Press **Esc** to restart normal INDeX programming.

Logging Off

After programming it is important to log off correctly. Simply disconnecting the serial cable will allow another programmer to use the INDeX under the scope of your programming password.

Before logging off, check that you have backed up your database changes (see page 11). We also recommend that you download a copy of the final INDeX database (see "Database Downloads" on page 12).

To log off the INDeX and exit Kermit:

1. At the **INDeX** prompt (**Select >**), type **ex** (note: lower case) and then press **↵**.
2. Press **Ctrl** and **]** at the same time.
3. Press **C** to return to Kermit.
4. Type **exit** and press **↵** to close Kermit.

INDeX Setup

Naming the Installation

The INDeX uses the installation name on fault reports and within downloaded database copies.

To set the Installation name:

1. From the **Main Menu**, select **System** and then **Installation**.
2. Select **Installation name** and enter a name of up to 30 characters.

Installation Number

The installation number is used by R2 MFC service as the INDeX's CLI for return calls. R2 MFC services are supported by the E1/R2 PRI cassette and R2/DID ALOG cassette.

Set the **Installation number** to the operator or similar suitable number.

To set the Installation Number:

1. From the **Main Menu**, select **System** and then **Installation**.
2. Select **Installation number** and enter the number (up to 20 digits).

Date & Time Settings

The INDeX maintains a date and time clock for display on suitable terminals. The INDeX also uses the date and time for features such as night service, call logging and statistics, etc.

Note that within INDeX programming the time is always in 24-hour clock format.

You can change the date & time maintained by the INDeX from within INDeX programming. You can also alter the way display terminals show the time and date.

The INDeX date and time can also be changed from Windows Operator Consoles and by DT display terminals with their **User Type** set to *system manager* (see page 61).

To set the time & date:

1. From the **Main Menu**, select **System** and then **Clock**.
2. Select **time** and enter the new value.
3. Select **date** and enter the new value.

To set the time display mode:

1. From the **Main Menu**, select **System** and then **Clock**.
2. Select **time mode** to switch between **12-hour** and **24-hour** display.

To set the date display mode:

1. From the **Main Menu**, select **System** and then **Clock**.
2. Select **DM or DMY** to switch the date display between day:month or day:month:year respectively.

Language Settings

The INDeX supports several languages for use on the display of DT/TT terminals. You can specify both the INDeX wide default language and the language for an individual user.

To set the INDeX's default language:

1. From the **Main Menu**, select **System** and then **Installation**.
2. Select **default language** to change the current setting.

To set the language used for an individual user:

Display terminal users can change their language setting from the terminal.

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Personal status**.
3. Select **Language** to change the current setting (**Default** means use the INDeX's default language as set above).

Secondary Dial Tone

When users start dialling an external call, the call is not connected to an external line until full ARS processing has taken place. Some locations require that the user hears secondary dial tone after having dialed the **PSTN access digit** (see "*PSTN Access Digit*" on page 16).

To switch secondary dial tone on/off:

1. From the **Main Menu**, select **PSTN Access**.
2. Select **Secondary dial tone required** to switch the current setting between *yes* or *no*.

Page Call Controls

Normally extension users can answer page calls by pressing their **Answer Release** key. On larger INDeXs and INDeXs where network pages are used, this can cause problems with unintentional page answers.

The INDeX allows the answering of page calls to be switched off if necessary.

To switch page answering on/off:

1. From the **Main Menu**, select **System** and then **Facility options**.
2. Select **Answer page** to select either *yes* or *no*.

Default Groups (Operator, Night Service, Line & Page Group)

Several groups already exist even on a new INDeX. The numbers for those groups are listed in the **Reserved numbers** menu (**Directory > Setup > Reserved numbers**).

- **Line Group:**
This group contains the directory numbers of external trunks on the INDeX. The INDeX automatically adds new PSTN trunk devices to the group when they are allocated a directory number. The group is the default route used by ARS for outgoing external calls.
- **Page Group:**
This group contains user directory numbers allocated on the INDeX. The INDeX automatically adds new terminal devices to the group when they are allocated a directory number. The group is used as the default group for paging all extensions.
- **Operator group:**
This group is the default destination of incoming calls during day service. You should add operator extensions to this group. The group appears as **O** in **Call Control Plan** dispositions (see page 39).
- **Night Service Group:**
This group is the default destination of incoming calls during night service. The INDeX automatically adds new terminal devices to the group when they are allocated a directory number. The group appears as **N** in **Call Control Plan** dispositions (see page 39).

To edit group members:

See *"Adding & Deleting Group Members"* on page 83.

To set the group numbers:

If done after group members have been added to the groups, the contents of the new groups may need to be edited manually.

1. From the **Main Menu**, select **Directory** and then **Set up**.
2. Select **Reserved numbers**.
3. Select the group to alter (**Page Group**, **Line Group**, **Operator Group** and **Night Service group**) and then enter its new directory number.
 - The other groups shown on the menu are used by other services and their usage is detailed elsewhere in this manual.

PSTN Access Digit

The INDeX takes the dialling of a number starting with the **PSTN access digit** as indicates an external call. It uses that digit to triggers various functions (*eg. forced pin or forced account code entry – see “Forced PIN or Account” on page 75*).

To alter the PSTN Access Digits:

Note: Altering this digit will require matching changes in ARS.

1. From the **Main Menu**, select **PSTN Access**.
2. Select **PSTN access digit** and enter the digit which should indicate an external call from the INDeX.

Inserting Device Cassettes

Overview of Inserting Cassettes

Several actions occur when a device cassette is inserted into an empty INDeX cabinet slot.

- Any trunk devices within the cassette are allocated directory numbers based on the **Next trunk number** setting. Those directory numbers are also added to the **Line group**.
 - For PRI cassettes, the allocation of directory numbers must be triggered manually (*see page 18*).
 - For BRI cassettes, the first pair of channels are set as a T-interface (trunk) and all remaining channel pairs are set as S-interfaces (terminals).
- Any terminal devices within the cassette are allocated directory numbers based on the **Next terminal number** setting. Those directory numbers are also added to the **Page group**.
 - A matching **User** is created and associated with the terminal.
- The function of the cassette slot is locked. To replace the cassette with a cassette of a different type or capacity refer to the INDeX Installation & Maintenance manual.

Next Trunk and Next Terminal Numbers

When new trunk and terminal devices are added to the INDeX, they are normally automatically allocated directory numbers. The **Next terminal number** and **Next trunk number** settings determine what those numbers will be.

The **Next terminal number** value can be left blank to disable automatic directory numbering of new terminal devices. In that case a directory number must be manually assigned to the terminal (*see "Assigning Users to Terminals" on page 57*).

To set the Next terminal/trunk/group numbers:

1. From the **Main Menu**, select Directory and then Set up.
2. Select **Reserved** numbers.
3. Select **Next terminal number** or **Next trunk number** and enter the number required.
 - Note that the numbers displayed change automatically as numbers are allocated.

Primary Rate Interfaces

Primary Rate Interfaces (PRI) provide multiple digital trunks through a single physical link). Each PRI connection provides up to 30 B-channels (bearer channels) for calls plus a D-channel (data channel) for call control.

The INDeX supports PRI using the following device cassettes:

- **DASS Cassettes: (Digital Access Signalling System)**
A digital service for external calls. You can use DASS trunks as either normal trunks or DDI trunks.
- **DPNSS Cassettes: (Digital Private Networking Signalling System)**
A digital service for private network calls using leased digital lines.
- **EURO ISDN Cassettes: (Integrated Services Digital Network)**
Each EURO ISDN cassette acts either as a T-interface (ie. provides INDeX to PSTN trunk connections) or an S-interface (ie. provides INDeX to private network connections).

PRI Cassette Setup

The settings for PRI interfaces cassettes **must** match those required by the PSTN service provider.

To setup a PRI cassette:

1. From the **Main Menu**, select **Linecard Information** and **Linecard details**.
2. Use the **Tab** key or **Select card** to display the PRI cassette's details.
3. Select **Enter description** and enter a name for the cassette.
4. Select **Linecard setup**.
5. For all PRI cassette types, select **Frame Format** and set this to **CRC** (cyclic redundancy check) or **DF** (double frame) as required by the network provider.
6. For DPNSS cassettes, select **Signalling Channel** and set this to **A** or **B** as required by the network provider.
7. For EURO ISDN cassettes, select **Interface type** and set this to **T** for connection to the PSTN or to **S** for connection to a private network.

Allocating PRI Channels

Unlike other trunk devices, the INDeX does not automatically allocate directory numbers to PRI channels.

To allocate/deallocate PRI channels:

1. From the **Main Menu**, select **Linecard Management** and then select **Linecard details**.
2. Use the **Tab** key or **Select card** to display the PRI cassette's details.
3. Select **Channel details**.
4. To allocate all channels in one go, enter *****. The INDeX then assigns the channels free directory numbers in sequence starting with the first channel.
5. To allocate a single channel at a time, enter the channel number.

To deallocate a PRI channel:

1. Follow the same process as for allocating a channel. After selecting the channel, press **↵** to reset the channels (or use ***** to deallocate all the channels at the same time).

DASS Closed User Groups

Some DASS providers support the use of Closed User Groups (CUG). Members of a user group can only make and receive calls to/from other members of the same user group. The intended use of this service is to restrict and control access to devices linked via ISDN lines, eg. commercial databases and computers

To use this service you require Closed User Group numbers supplied by the DASS service provider. A separate user option turns use of the CUG number on or off.

To allocating a CUG number to a user:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Closed user group number** and enter the 2-digit CUG number (or press ↵ to reset it to *not assigned*).

To switch CUG operation on/off:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **CUG outgoing access** and set this to *inhibited* to bar the user making or receiving DASS calls outside its CUG group or *permitted* to allow such calls. *Not applicable* indicates that the user has no CUG number set.

Basic Rate Interfaces

The INDeX supports Basic Rate Interface (BRI) connections through BRI cassettes and the BRI Combo cassette (BRIC). Each BRI connection provides two B-channels (bearer channels) for calls plus a D-channel (data channel) for call control.

Each BRI Cassette connection can act as either an S-interface (INDeX to PSTN connection) or a T-interface (INDeX to INDeX or ISDN terminal connection).

BRI Cassette Setup

When inserted, the INDeX defaults the cassette's first circuit to a T-interface (INDeX to PSTN connection) and any remaining circuits to S-interfaces (INDeX to INDeX or ISDN terminal connection).

Each BRI B-channel (two per connection) is allocated an appropriate trunk or user directory number at the same time (*see page 17*).

If a circuit is changed from S to T or T to S, the INDeX automatically deallocates the existing pair of trunk or user directory numbers and allocates directory numbers. You must manually remove the numbers from the **Line Group** if necessary (*see page 83*).

To configure BRI cassette circuits:

WARNING: Use these commands to check settings only. Changing these settings also requires corresponding changes to the physical wiring.

1. From the **Main Menu**, select **Linecard Information** and **Linecard details**.
2. Use the **Tab** key or **Select card** to display the PRI cassette's details.
3. Select **Enter description** and enter a name for the cassette.
4. Select **Linecard setup**.
7. To change a circuit's settings, enter the circuit number, the circuit type and circuit type suffix (*if required*). The options are:
 - **Circuit Types:**
 - **T** = T-Interface with connect detect (ie. power from the line). Use this setting for INDeX to PSTN connections.
 - **X** = As per T-Interface with no connect detect (ie. no power from the line).
 - **S** = S-Interface for INDeX to INDeX or ISDN terminal device connection.
 - **Circuit Type Suffix:**
 - **P** = Point to point connections (p-p). Use this setting for S-interface connections.
 - **M** = Point to multi-point connection (p-m).

Analogue Devices

The INDeX supports the following types of analogue circuit.

- **Two-Wire Analogue Terminals:**
Loop start unguarded clear circuits using MF signalling and time break recall.
- **Analogue Trunk Circuits:**
Loop start unguarded clear circuits using MF signalling and time break recall.
- **AC15 Circuits:**
SSAC15A (BTNR 181) using 10pps or MF signalling and time break recall.
These can be used for normal calls, DDI calls and DISA *calls* (see page 73).

The INDeX provides analogue circuits in the following ways. The availability of cassettes may vary within different countries.

- **Analogue Cassettes: (ALOG)**
ALOG cassettes provide either a mix of analogue trunk and analogue two-wire terminal connections or just AC15 connections.
- **Combo Cassettes: (COMBO)**
COMBO cassettes provide a mix of analogue trunk, analogue two-wire terminal and DSLC* circuits.
- **Basic Rate Combo Cassettes: (BRIC)**
BRIC cassettes provide a mix of analogue two-wire terminal, DSLC* and BRI circuits.

*DSLC = Digital Subscriber Line Card: Used for DT and TT terminal connections.

ALOG Circuit Settings

For analogue devices (trunk, two-wire terminals and AC15 circuits), an extra **Trunk** or **Terminal** menu option called **Analogue control data** is accessible. The settings entered for each analogue circuit must match those required by the line or equipment provider.

To alter the settings for an ALOG cassette circuit:

1. From the **Main Menu**, select **Trunk** (AC15 or analogue trunk) or **Terminal** (two-wire terminal circuit) and enter the device's directory number.
2. Select **Analogue control data**.
3. Alter only those settings indicated by the line provider/ equipment manufacturer or as below.

To set a two-wire terminal circuit for MF or LD dialling:

Not all two-wire circuits support LD operation, nor is it approved for all countries. Consult with Lucent Technologies for full details.

1. Select **Terminal** and then **Analogue control data**.
 - For MF dialling, set the **Recall detect minimum** to **5**.
 - For LD dialling, set the **Recall detect minimum** to **9**.

To set the dialling timeout on a POT:

This controls the delay between digits before the POT accepts no further dialling.

1. Select **Terminal** and then **Analogue control data**.
2. Select **Dialling timeout** and enter a value (*1 to 255 100ms*).

To set an AC15 circuit for MF or 10PPS:

1. Select **Trunk** and then **Analogue control data**.
 - For MF dialling, set the **Signalling type** to **DTMF**.
 - For 10PPS dialling, set the **Signalling type** to **pulse**.

To set the signalling on an ALOG trunk circuit:

1. Select **Trunk** and then **Analogue control data**.
 - For **Clearing mode** set to **unguarded** or **disconnect**, set the **Disconnect/Guarded clear** to **45**.
 - For **Clearing mode** set to **guarded**, set **Disconnect/Guarded clear** to **2**.

Networking

Overview of Networking

Each switch on a network has a node number (on the INDeX, set as its **site network number** through the **System > Installation** menu). Any dialling or incoming call prefixed with a node number of another switch is routed in accordance to the settings in the **INDeX's Network routing** table.

Incoming calls prefixed with the INDeX's own node number have the prefix removed and then any remaining digits used to route the call on-switch.

The INDeX tries to treat switch to switch calls the same as internal calls and to treat external calls transferred across a network as still external calls. The extent to which this is achieved depends on the type of network connection and the switches at each end of the connection.

- **Basic Networking:**

The routing of calls between the INDeX and other telephone switches (not necessarily other INDeXs). The features available on such a network link depend on the type of connection and the type of switch at the remote end.

- **Integrated Networking:**

On DPNSS network links where the remote switch is another Level 8.0 INDeX, a much wider range of features is supported. To enable all those features requires a number of Integrated Network Planning Rules to be observed.

- **Virtual Private Networking:** (VPN)

VPN allows network calls to another Level 8.0 INDeX to be routed over dial-up PSTN connections. It is supported on ISDN 2 and Euro ISDN trunks with 'user to user messaging' enabled. VPN also supports a range of features similar to Integrated Networking and thus require the same adherence to the Integrated Network Planning Rules.

- **Voice Compression:** (VCC)

Using the Voice Compression Cassette (VCC), up to seven simultaneous calls can be routed along the same trunk connection to another INDeX with a VCC cassette. VCC is supported on BRI T, Euro ISDN, DASS II and DPNSS trunks with 'called party sub-addressing enabled'. Additionally, VCC supports DPNSS signalling across those connections and so enables Integrated Networking on those links.

Integrated Networking

When the remote switches in a DPNSS network are other INDeX switches,* the INDeX can support a range of integrated networking features.

Those features are:

- **Normal Internal Call Information Display:**
For DPNSS calls between extensions, normal extension information (name, divert status, etc) is displayed rather than the DPNSS line number.
- **Internal and External Ringing Differentiation:**
DPNSS calls from another INDeX's extensions present with internal ringing. External calls transferred across a DPNSS link present with external ringing.
- **Dial Ahead:**
A dial-ahead to check the status of a remote extension can be done across a DPNSS link. Note that the status information is not updated with status changes whilst displayed.
- **Wide Area Group Paging:**
Page calls to a group on the INDeX also page the same group on other INDeX's linked by DPNSS. As a means to inhibit this feature when not required it will not work for rotary groups.
- **Retrieve Trunk Parked Calls:**
trunk parked calls can now be retrieved over a DPNSS link.

*This manual assumes that the INDeX switches all have the same software level.

Integrated Network Planning Rules

To implement an integrated network, a number of network planning rules must be followed for all the INDeXs involved.

Those rules are:

- **Unique Extension Numbers:**
Extension numbers must not be repeated (ie. they must be unique).
- **Unique Trunk Numbers:**
Trunk numbers must not be repeated (ie. they must be unique).
- **Matching Group Numbers for Wide Area Paging:**
For wide area paging, the group numbers must match. The groups must not be rotary.
 - Setting a group to rotary provides a mechanism to disable wide area paging when not required in the integrated network.
- **Use Len field in Network Routing Table:**
The length (**Len**) field in the network routing table must be used.
 - Setting the length to **0** disables integrated networking on that route. Use this setting for non-INDeX switches and INDeX switches with earlier software levels.
 - For integrated network INDeX links, set it to equal the length of the remote INDeX's node number plus extension number length.
- **Identify Remote Users:**
For integrated network links, user to user call routing can be setup without requiring routing details in the appropriate network routing tables. This is done using the **Identify remote users** option (*see page 32*).
- **Route by Simple String Analysis:**
The preferred method for routing calls other than user to user (ie. trunk pickup and group calls) is to use ARS string analysis. This should prefix the appropriate node number when it sees the dialling of another INDeX's trunk numbers or group numbers.
 - Whilst the use of translations and other more complex ARS routing methods may work, the effects on some integrated network functions may be inconsistent.

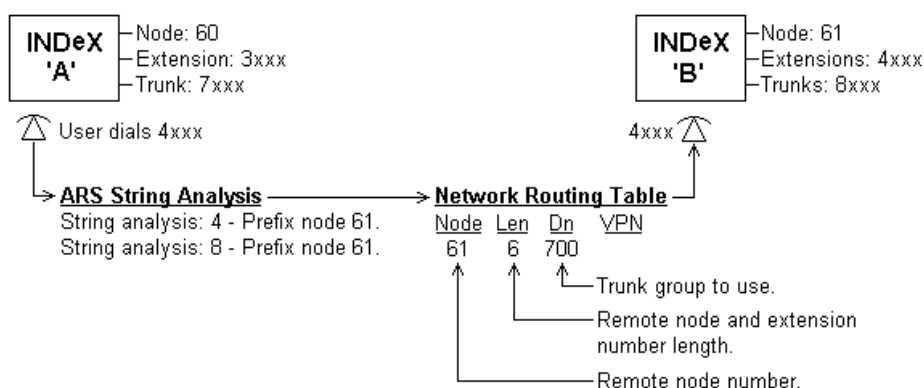
Network Routing

The diagrams below show the preferred method of network call routing. This approach (using string analysis to prefix the node number) supports all the functions of each network type, ie. basic, integrated, VPN and VCC.

Whilst more complex routing can be used, their effects on all network features may become inconsistent.

Basic and Integrated Network:

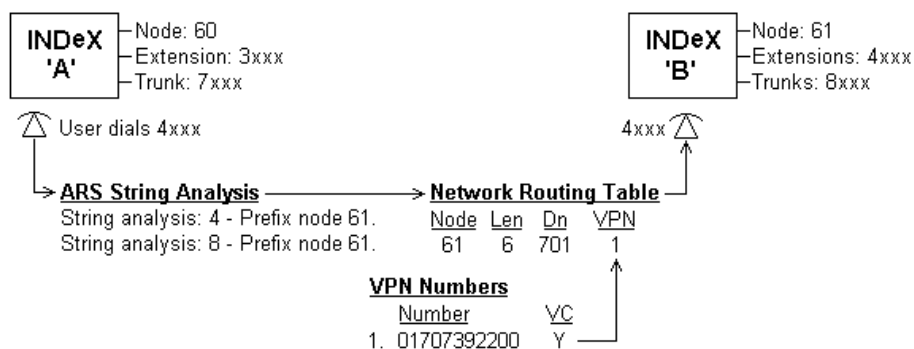
The diagram below shows the simple routing of calls between two INDeXs. At INDeX A (Node 60), string analysis prefixes any dialling that starts with a 3 or 8 with the node number 61 and directs the call to the network routing table.



- The **Len** field for routing calls to Node 61 is set to **6**, allowing integrated networking. If node 61 were not an INDeX or was an INDeX with earlier software, then the **Len** should be set to **0**.

VPN and VCC Integrated Network:

The diagram below shows the same network as above but now routing the calls to a PSTN trunk group using a number set in the **VPN Numbers** table.



- If both the INDeXs have VCC cassettes, then the **VC** field in the **VPN Numbers** table should be set to **Y**. For that routing, a **VPN Access** licence is not required.
- If the INDeXs do not have VCC cassettes, then the **VC** field in the **VPN Numbers** table should be set to **N**. For that routing a **VPN Access** licence is required.

Virtual Private Networking (VPN)

INDeX integrated networking can be extended to support the routing of network calls across PSTN connections. This is called 'virtual private networking' (VPN).

VPN might be used to include a small branch office in a network and make network features available to that office when the cost of a leased network line cannot be justified.

VPN is supported on ISDN 2 and Euro ISDN trunks. It requires the PSTN provider to support and enable 'user to user messaging' (for which they may charge).

'User to user messaging' is only available at call set up and clear down, so limits the number of INDeX features that can be used on VPN connections.

INDeX features supported by VPN are:

- **Callback when free/next used.**
- **Camp on.**
- **Message waiting.**
- **Divert all.**
- **Dial ahead.**
- **Wide area paging.**
- **Parked call pickup.**
- **Directory names and absence messages.**

Note that the use of VPN requires entry of a VPN licence on all the INDeXs involved.

Entering the VPN Access Licence

For all INDeX's in the VPN, enter their VPN Access licence.

To enter the VPN Access licence:

1. From the **Main Menu**, select **System** and then **Switch licences**.
2. Select **VPN access** and enter the licence key for the INDeX.

Voice Compression Networking (VCC)

The INDeX Voice Compression Cassette (VCC) provides two key functions for calls to a remote INDeX that also has a VCC cassette:

- It allows up to 7 simultaneous calls on a single B-channel.
- It enables DPNSS networking features (including integrated networking) on non-DPNSS connections.

The use of VCC is supported on BRI T, Euro ISDN, DASS II and DPNSS trunks. The PSTN provider must support and enable the use of 'called party sub-addressing'.

The trunk interfaces at each switch must be using the same digital protocols, ie: DPNSS to DPNSS, DASS II to DASS II, Euro ISDN or BRI T to Euro ISDN or BRI T.

The different VCC cassette variants can only route 8, 16 or 28* calls (shown as **VCCx** on the cassette's label). Any further calls are routed as single uncompressed calls if trunks are available. Those uncompressed calls do not have access to the DPNSS networking features.

VCC does not support:

- Fax, modem or data calls.
- PSTN routing on satellite connections.
- PSTN routing where the PSTN provider also applies compression.

*For the VCC 28, the number of compressed calls plus the number of B-channels carrying those calls cannot exceed 32.

VCC calls are routed in the same way as VPN calls but do not require entry of the **VPN Access** licence key.

The VCC Input and Output Groups

The INDeX maintains two groups for the virtual channels created by the presence of a VCC cassette. The groups (the **VCC Input Group** and **VCC Output Group**) are maintained automatically by the INDeX and should not be altered.

The only variant is that for the VCC28, the maximum number of output channels (ie. physical B-channels) it can use must be set through **Linecard details**.

Networking Programming

To proceed with network setup requires full network information from the network planner.

Setting the Site Network Number

The first digits of an incoming network call are the node number of the call's target site. The INDeX compares these against its own site network number:

- If they match, the INDeX uses the remaining digits to place the call on-switch (incoming network calls are not subject to ARS).
- If the digits do not match, the call passes to the network routing table for onward routing as a transit call.

To set the site network node number:

1. From the **Main Menu**, select **System** and then **Installation**.
2. Select **site network number** and enter the number provided by the network planner (up to 6 digits).

Setup Transit Call Controls

Incoming digital calls transiting to an AC15 circuit require a time interval during which further digits for the routing of the call at the remote end of the AC15 line can be passed on. The Tandem dialling timeout sets the interval after which no further dialling digits are accepted.

To set the tandem dialling timeout:

1. From the **Main Menu**, select **System** and then **Timeouts**.
2. Select **Tandem dialling** and enter the interval required in tenths of seconds (default 60 1/10th seconds).

Network Channel Priority

Channel priority is used to resolve call collisions on network channels. Each digital trunk requires its **Network channel priority** set as either **X** or **Y**.

When a collision occurs, the incoming call on an **X** trunk is allowed and the outgoing call abandoned, vice versa on **Y** channels.

To set a trunk's network channel priority:

1. From the **Main Menu** select **Trunk** and enter the trunk's directory number.
2. Select Call distribution.
3. Select **Network channel priority** and set this to **X** or **Y** as required.

Setting Up the Frame Synchronisation Table

Digital trunk devices require a clock signal against which to synchronise call control. On PSTN digital trunks the PSTN provider provides the clock signal.

For private network digital trunks the INDeX can either generate its own clock signal or use a clock signal generated elsewhere and received via an existing digital trunk connection.

If the clock signal connection fails, the INDeX needs to know from where to take a new clock signal. The **Frame synchronisation table** lists the possible clock sources in order of preference for usage.

Where possible, the clock signal from PSTN digital trunks should be placed highest in the **Frame synchronisation table** as those clock signals tend to be the most accurate and reliable.

To set the frame synchronisation sources:

1. From the **Main Menu**, select **System** and then **Frame synchronisation**.
2. Use **Insert at priority**, **Change** and **Delete** to alter the priority numbers.
3. If inserting or changing a number, enter the address of a cassette linked to the clock signal source or enter **0** for the INDeX's own clock signal (shown as **CPU**).
4. Alter the priorities as specified by the network planner.

Setting Up the Network Routing Table

ARS can route calls to a network route. When this happens, the INDeX compares the leading digits of the call (after any ARS digit translation) against entries in its **Network Routing table**. When it finds a match, the INDeX routes the call and all its digits to the trunk or trunk group set in the table.

Incoming network calls in transit to another site also use the network routing table.

The network planner determines the network routes needed in the **Network Routing Table**. Some network calls may require routing via other intermediate switches to reach their destination.

To set a network route:

1. From the **Main Menu**, select **Network**.
2. If the connection is to use a PSTN link to another INDeX then use the VPN table to store the PSTN number.
 - a. Select **VPN numbers**.
 - b. Select a numbered slot (1 to 100) and enter the PSTN number to use for calls to the remote INDeX (without any external dialling prefix).
 - c. When prompted to **Use Voice Compression**, enter **Y** if both INDeXs have VCC cassettes, otherwise enter **N**.
 - d. Press **Esc** to return to the **Network Facilities Menu**.
2. Select **Routing Table**.
 - a. Enter the remote switches node number. Then enter the following information when requested:
 - b. **Network address length: (LEN)**
For an integrated networking connection (including VPN and VCC), enter the number of digits in the remote INDeX's node number plus the number of digits in the remote INDeX's directory numbers. For any other type of connection enter **0**.
 - c. **Network Route Directory number: (Dn)**
Enter the trunk or trunk group over which to route the calls for the remote INDeX.
 - d. **VPN reference number: (VPN)**
For VPN and VCC connections, enter the number of the **VPN Numbers** slot used to store the remote INDeX's PSTN number, otherwise leave this field blank.

To cancel a network route:

1. Following the same process as for setting up a network route, enter the existing route number again to cancel it.

Remote Users

Within an integrated network using DPNSS connections (including VCC), the INDeX function can include remote user names from the other INDeX switches. It also removes the need to setup routing for remote user directory numbers in the Network Routing Table.

The **Identify remote users** command is used to indicate the remote nodes and prime the INDeX function's list of users. The INDeX will then learn user name changes and new user names during any DPNSS calls involving those users.

To set up remote users:

1. From the **Main Menu**, select **Directory** and then **Set up**.
2. Select **Identify remote users**.
3. Enter the node number of the remote INDeX and then the range of remote user directory numbers.

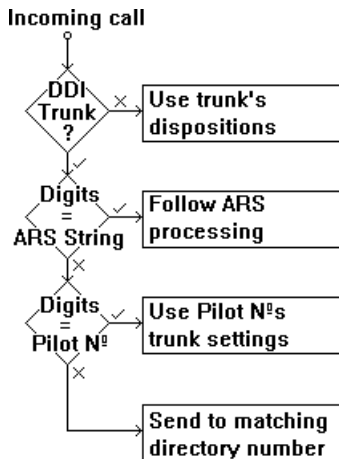
Anti-Tromboning Control

When a call leaves the switch on a DPNSS trunk, it is possible that the call may return from the remote switch on another DPNSS trunk. When this happens, the anti-tromboning control converts the call back to a simple on-switch call, freeing up the DPNSS trunks.

The **Anti-trombone** control (**System > Facility options**) can be used to switch anti-tromboning to **yes** or **no**. It is intended for INDeX testing only and should always be left set to **yes** on end-user INDeXs.

DDI & Pilot Numbers

How the INDeX Routes DDI Calls



DDI (*Direct Dialling Inwards*) uses digits received with an incoming PSTN call to route the call on the INDeX. The number of digits received, the range of digits and the lines on which they are received is arranged with the PSTN line provider.

The INDeX supports DDI on PRI, BRI and AC15 trunks. Note that trunks set to DDI operation cannot then receive non-DDI calls.

The INDeX use the following DDI routing options in sequence:

1. **Check for an ARS String Analysis Match:**

If the DDI digits match a string in ARS, the call follows the ARS instructions. The only DDI restriction is that if directed to a route list, it can only use the first route. Using ARS allows you to apply digit translation to DDI calls and to route them on switch, via network links or off-switch.

2. **Check for a Pilot Number Match:**

If the DDI digits match a pilot number set on the INDeX, the call uses the settings of the Call Control Plan associated with pilot number. Pilot numbers use directory numbers. This method treats the DDI call as a normal incoming call, applying ACA, diversions, and dispositions, etc (see 'Setting Up Pilot Numbers' on page 36).

3. **Direct to the Matching Directory Number:**

If no ARS or pilot number matches the DDI digits, the INDeX routes the call to the matching directory number, ie. user or group directory number. Each user has a number of settings to handle the redirection of DDI calls when busy (see page 35).

DDI Calls on the Operators Console:

Any DDI calls received at an operator's console appear in External Queue 3, regardless of the settings of any Call Control Plan. This applies to all DDI calls regardless of the method of routing and whether they have been transferred or diverted.

The DDI Directory & DDI Names

The INDeX supports a DDI directory for DDI numbers. The DDI directory is separate from the INDeX's own directory numbers.

The DDI directory allows DDI numbers to be given a directory name. That name is then carried with the DDI call and takes precedence over any Pilot number or Trunk name that may be associated with the call (*see page 88*).

The DDI directory allocates DDI numbers in blocks with a starting number and a block size. This reflects the way in which PSTN providers allocate DDI numbers.

The INDeX DDI directory contains and names DDI numbers of up to eight digits. Some ISDN services present DDIs of more than eight digits. For DDI naming, the INDeX matches DDIs to its DDI directory using the last eight digits of a DDI. For DDI routing it uses all the digits of the DDI received.

To add a set of DDI numbers:

1. From the **Main Menu** select **Directory** and then **DDI numbers**.
2. Select **Add a new number block**. Enter the starting DDI number and then the block size.

To edit DDI numbers:

1. From the **Main Menu** select **Directory** and then **DDI numbers**.
 - To remove a block of DDI numbers select **Remove a number block** and enter the first number.
 - To change a block size select **Change a block size**.
 - To change the first number of a block (and all numbers within the block) select **Change a first number**.

To name a DDI number:

1. From the **Main Menu** select **Directory** and then **DDI numbers**.
2. Select **DDI names** and enter the DDI number (it must be already defined within a DDI block).
3. Select **Change DDI Name** and enter a name (up to 16 characters).
4. To name another DDI number select **Enter a new target number** and enter the number.

Enabling DDI on a Trunk

For an incoming call to ignore the trunk menu settings and use DDI routing, you must specify that trunk as a DDI Line. The trunk provider must also set that trunk to provide DDI digits.

To set a trunk to DDI operation:

1. From the **Main Menu**, select **Trunk** and enter the trunk's directory number.
2. Select **DDI Line**.
 - For non-R2 DDI trunks, enter 0 to set it to **yes**.
 - For R2 DDI trunks, enter the number of DDI digits the trunk will receive.
3. You may want to restrict the DDI trunk to incoming calls only, if so select **Service type** and set this to **incoming**.

Trunk ARS Settings

The INDeX can subject incoming DDI digits to ARS if they match a string in ARS String Analysis.

If the ARS processing goes to plan based analysis (*see page 54*), the **Dialling Plan number** used is taken from the DDI trunk's associated **Call Control Plan** (*see page 37*).

To set a trunk's dialling plan number:

1. From the **Main Menu**, select **Call control plan** and enter the number of the trunk's associated call control plan.
2. Select **Dialling plan** and enter the required plan number.

User DDI Settings

The INDeX provides several redirection options for DDI calls that go directly to a user. These options are used when the user is already busy when the DDI call arrives.

These options do not apply to DDI calls following a pilot number or going to a group of which the user is a member.

To redirect direct DDI calls from a busy user:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Extended functions**.
3. Select **DDI mode** and set one of the following options:
 - **wait on busy**: Returns ringing to the DDI caller and activates any call waiting indication on the user's terminal.
 - **redirect on busy**: Redirects the DDI call using the dispositions on the user directory number's associated Call Control Plan (*see page 38*).
 - **wait/redirect on busy**: A combination of the two settings above. The DDI Answer Timeout (*see below*) sets the wait before the call is redirected.
 - **reject on busy**: Returns busy tone to the DDI caller.
4. Select **DDI answer timeout** and set the waiting period in seconds for the **DDI mode** set to **wait on busy** or **wait/redirect on busy**. Note that this also determines how long a free terminal will ring before the user's associated Call Control Plan is used to route the call.

Setting Up Pilot Numbers

If the DDI digits match a pilot number, the call follows the settings of the Call Control Plan associated with the pilot number.

Pilot numbers are standard directory numbers taken from the available directory number range. Note that network calls can also be directed to a pilot number and then follow the pilot number's settings.

Pilot number options are:

- **Name:**
A 16 character name to associate with the call. Note that this is overridden by the DDI name if set (*see page 34*).
- **Call control plan:**
The settings for call dispositions, announcer plans, etc. to use.
- **Call limit:**
Sets the maximum number of calls that can be routed via the pilot number at any time. Additional calls above the limit receive busy tone.
- **Call limit mode:**
Sets how the Call limit is used. When set to ***calls accepted*** the limit is based on the number of calls waiting to be answered and calls already answered and are still in progress. When set to ***calls waiting*** the limit is based on just the number of calls waiting.

To create/edit a pilot number:

1. From the **Main Menu**, select **Directory**.
2. Select **Pilot numbers** and enter the directory number that matches the DDI digits.
 - If ***"number not in use, allocate now? [Y/N]"*** appears, enter ***Y*** to use the directory number as a Pilot Number.
3. Select **Name** and enter a name of up to 16 characters.
4. Select **Sort option** and set how the name should be sorted within the INDeX function (***As entered*** or ***Last name first***).
5. Select **Call control plan** and enter the number of the plan that will control DDI calls matching the Pilot Number.
6. Select **Change call limit** and set the call limit (just press ↵ without a value to set ***no limit***).
7. Select **Call limit mode** and set this to ***calls accepted*** or ***calls waiting***.

Call Control Plans

Introduction to Call Control Plans

Call Control Plans are used to group together the call routing settings used by trunks and pilot numbers*. The INDeX supports 500 Call Control Plans.

Several trunks and pilot numbers can use the same plan. This simplifies INDeX programming and the speed of implementing changes to INDeX programming.

As a summary, each Call Control Plan controls:

- **Dialling plan number** and **Line Selection string** for ARS.
- **Music on Hold** source or trunks.
- **Include on Smdr** for trunks.
- **Call Distribution** settings.
 - **Day and Night Dispositions** and **Announcer Plans**.
 - Call queuing **Priority** and **Queue number**.
 - Night service **Area** for trunks.
- **Call Timers**.

NOTE

Call Control Plan 1 is the default plan used for new trunks, pilot numbers and users. Thus it is important to always have usable and valid values set in that plan.

Call Control Plan Identification

Each call control plan can be given an identification name to aid in identifying its usage.

To set a call control plans name:

1. From the **Main Menu**, select **Call control plan** and enter the plan's number.
2. Select **Identification** and enter a name of up to 15 characters.

Associating Call Control Plans

Each trunk, user and pilot number is associated with a Call Control Plan through the INDeX's **Directory**.

To associate a trunk to a call control plan:

1. From the **Main menu**, select **Directory**.
2. Select **Trunk identity** and enter the trunk's directory number.
3. Select **Call control plan** and enter the plan that the trunk should use.

To associate a pilot number to a call control plan:

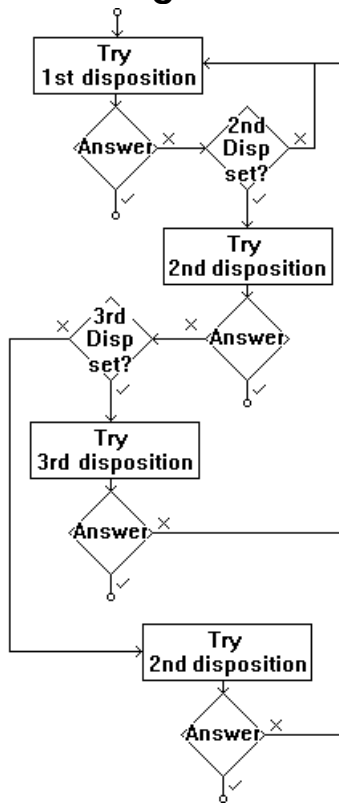
1. From the **Main menu**, select **Directory**.
2. Select **Pilot numbers** and enter the pilot number's directory number.
3. Select **Call control plan** and enter the plan that the pilot number should use.

To associate a user to a call control plan:

A user's call control plan is used to reroute direct DDI calls when the user is busy (*see page 35*). It is also used for reroute calls to a user directory number with no associated terminal (eg. a logged off hot desking user) unless the user has a divert all number set.

1. From the **Main menu**, select **Directory**.
2. Select **User identity** and enter the user's directory number.
3. Select **Call control plan** and enter the plan that the user should use.

Incoming Call Routing (Dispositions)



Normal incoming calls follow the dispositions set in the incoming trunk's associated call control plan. Each plan has 3 day service dispositions and 3 night service dispositions.

Each disposition can be any directory number, group number, speed dial number, operator group or night service group.

These options only apply to normal calls (*for DDI calls see page 33, for DISA calls see page 73 and for network calls see page 23*).

– Call Presentation Order:

Initially the INDeX presents the call to the first disposition. If unanswered the INDeX presents the call to the next disposition.

- With all three dispositions set, unanswered calls cycle through the dispositions until answered.
- With no 2nd disposition set, calls remain at the 1st disposition.
- With no 3rd disposition set, calls try the 2nd disposition twice in each cycle.

– Overflow:

If all three current dispositions are unavailable or busy, the INDeX will try the three other dispositions before it defaults to the lowest terminal address on the INDeX.

– Call Presentation Timing:

Several timers control the time between each disposition until the call is answered (*see "Incoming Call Timers" on page 40*).

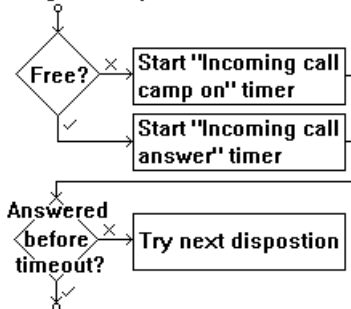
To set a plan's call dispositions:

1. From the **Main Menu**, select **Call control plan** and enter the plan's number.
2. Select **Call distribution**.
3. Select each disposition and enter the setting required:
 - Enter a directory number to route calls to a specific user or group.
 - Enter a speed dial store number prefixed with an **S** to route the call off-switch.
 - Press **↓** to set **no incoming dn** or **no night dn** as appropriate.
 - Enter **O** to route calls to the Operator group or **N** to route calls to the Night service group (*see page 15*).

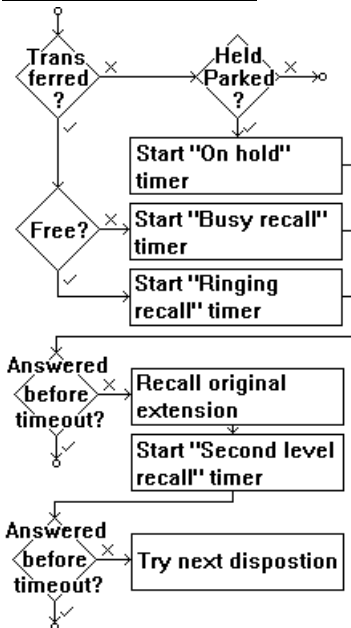
Incoming Call Timers

Incoming Calls:

Ring call disposition



Held & Transferred Calls:



The Call Control Plan's timers control presentation of new calls and held or transferred calls.

Incoming Calls:

- **Incoming Call Answer Timeout:** *Default = 120 seconds*
This timeout sets how long a call should ring a free disposition before trying the next disposition. The timeout still operates even if a disposition diverts the call to another destination.
- **Incoming Call Camp On Timeout:** *Default = 120 seconds*
This timeout sets how long a call should remain camped on to a busy disposition before trying the next disposition. The timeout still operates even if a disposition diverts the call to another destination.

Held & Transferred Calls:

- **Ringing Recall Timeout:** *Default = 45 seconds*
This timeout sets how long a transferred call should ring the transfer destination before recalling to the previous extension.
- **Busy Recall Timeouts:** *Default = 90 seconds*
This timeout sets set how long a transferred call should camp on to a busy destination before recalling to the previous extension.
- **On Hold Timeout:** *Default = 180 seconds*
Sets how long a call stays held or parked before recalling to the original extension.

Remember that calls to a terminal with a "divert on no answer" set will divert after a short period (10 seconds by default). If the above timeouts are set below that level, then the divert will not occur. If set just above that level, the diverted call may only give one or two rings before recalling.

Recalled Calls:

- **Second Level Recall Timeout:** *Default = 10 seconds*
Sets how long a call remains unanswered after recalling from an unanswered transfer before trying the trunk's next disposition.

To change a trunk's incoming call timers:

1. From the **Main Menu**, select **Call control plan** and enter the plan's number.
2. Select **Call timers**.
3. Set the time calls stay at a disposition before trying the next. Note that entering a value of **0** can disable either of these timeouts.
 - a. For the time at a ringing disposition, select **incoming call answer**.
 - b. For time at a busy disposition, select **incoming call camp on**.
4. To set the time a call remains on hold or parked before recalling the original extension, select **on hold**.
5. Set the time calls try a transfer number before recalling:
 - a. For the time at a ringing number, select **ringing recall**.
 - b. For the time at a busy number, select **busy recall**.
6. To set the time a call waits at a disposition to which it has recalled after a failed transfer before trying the next disposition, select **second level recall**.

Outgoing Call Presentation

This section details the action of the call timers for outgoing calls. The timers are:

- **Dial digits:**
Sets the time after which the INDeX releases any associated trunk if no digits are dialled. Do not set a value greater than 60 seconds on PSTN trunks. Set to 0 to suppress its operation.
- **Digit outputpulse:**
The INDeX passes digits to trunks in sets of 16. This timeout sets the space between each set of digits. The default only needs changing for LD trunks outdialling at 10 pulses per second (pps).
- **ARS Timers:**
ARS route lists can also apply time delays to external calls (*see "Setting up Route Lists" on page 50*).
- **Tandem Dialling Timeout:**
This timeout affects calls routing across the switch from a digital trunk onto an AC15 trunk (*see page 29*).

To set a trunk's outgoing call timers:

1. From the **Main Menu**, select **Call control plan** and enter the plan's number.
2. Select **Call timers**.
3. To set the time after which the INDeX releases any associated trunks if no digits are dialled, select **dial digits**.
4. To set the dialling time for each digit, select **digit outputpulse**.

Line Selection String

Seizing a trunk directly (by dialling its directory number or using a pre-programmed key) still invokes ARS. The INDeX prefixes the dialled digits with the **Line selection string** of the seized trunk. The full string is then subject to ARS string analysis. The INDeX only allows the call if string analysis leads to a route list using the required trunk as a route option.

The calling user's **Route Access Level** must be equal or greater than the required **Minimum Access** for that route. The INDeX then applies any translation set for that route to the dialled digits (eg. to strip the line selection string).

To change a trunk's line selection string:

1. From the **Main Menu** select **Call control plan** and enter the plan's number.
2. Select **Line selection string** and enter a string of up to 6 digits (or just press ↵ to leave the entry blank).

Trunk Programming

Defaulting a Trunk

You can reset the details for an individual trunk back to the default values.

To default a trunk:

1. From the **Main Menu**, select **Trunk** and enter the trunk's directory number.
2. Select **Default trunk**.

Setting a Trunk's Call Control Plan

Call Control Plans contain a range of settings to control how the INDeX routes calls (see *"Call Control Plans" on page 37*). The same call control plan can be shared by several trunks that require the same call routing settings

To set a trunk's call control plan:

1. From the **Main Menu**, select **Directory**.
2. Select **Trunk identity** and enter the trunk's directory number.
3. Select **Call control plan** and enter the plan that the trunk should use.

Setting a Trunk's Directory Name & Identification

The trunk's directory name is displayed on suitable terminals during a call using that trunk. However the name displayed during the call can also be taken from several other sources (see *"Alpha Tagging" on page 88*).

You can also give each trunk an identification name. The INDeX uses the identification name within its own programming menus and reports.

To set a trunk's identification:

1. From the **Main Menu**, select **Trunk** and enter the trunk's directory number.
2. Select **Identification** and enter a name of up to 15 characters.

To set a trunk's directory name:

1. From the **Main Menu**, select **Directory**.
2. Select **Trunks** and enter the trunk's directory number.
3. Select **Name** and enter a name of up to 16 characters.
4. Select **Change sort option** and set how the name should be used in the INDeX function (*As entered* or *Last name first*).

Trunk Service Type

A trunk's service type sets the direction in which it allows calls. The settings are *incoming*, *outgoing* or *bothway*. The INDeX bars use of a trunk in any other direction.

A further option, 'DISA', exists for DISA services (*see page 73*).

To change a trunk's service type:

1. From the **Main Menu**, select **Trunk** and enter the trunk's directory number.
2. Select **Service type** and then select the option required.

Divert on Busy/No Answer

You can bar an external call from following any diverts set on the dispositions to which it is presented.

To switch trunk call forwarding on/off:

1. From the **Main Menu**, select **Trunk** and enter the trunk's directory number.
2. Select **Busy or no answer** and set this to *do not forward* to stop automatic call forwarding.

Set Live Speech Path

Immediately the INDeX seizes a tie line that line can carry live speech. Initially that speech path carries digits to route the call on the remote switch and only then is the speech path opened to the caller.

In theory, if the speech path were made immediately open to the caller, they could send additional dial tones to override any remote end routing digits sent by the INDeX. To avoid this the **Live speech path** on a trunk is set to *no* by default.

Occasionally a tie line may go directly to a single terminal device. In that case no additional routing digits are sent and the caller requires a live speech path immediately.

To change a trunk's live speech path setting:

1. From the **Main Menu**, select **Trunk** and enter the directory number.
2. Select **Live speech path** to switch the setting between *yes* and *no*.

Automatic Route Selection (ARS)

Introduction to ARS

Automatic Route Selection (ARS) can be applied to almost any user dialling to then route a call on-switch, to the network routing table or to the external PSTN. During that process it can apply digit translations and make route selections based on time, date, who is dialling and other factors.

The default settings for ARS allow immediate operation of the switch for external calls without any further programming. Before performing any ARS programming to add additional routing features, ensure that you have read and understood ARS fully.

WARNING

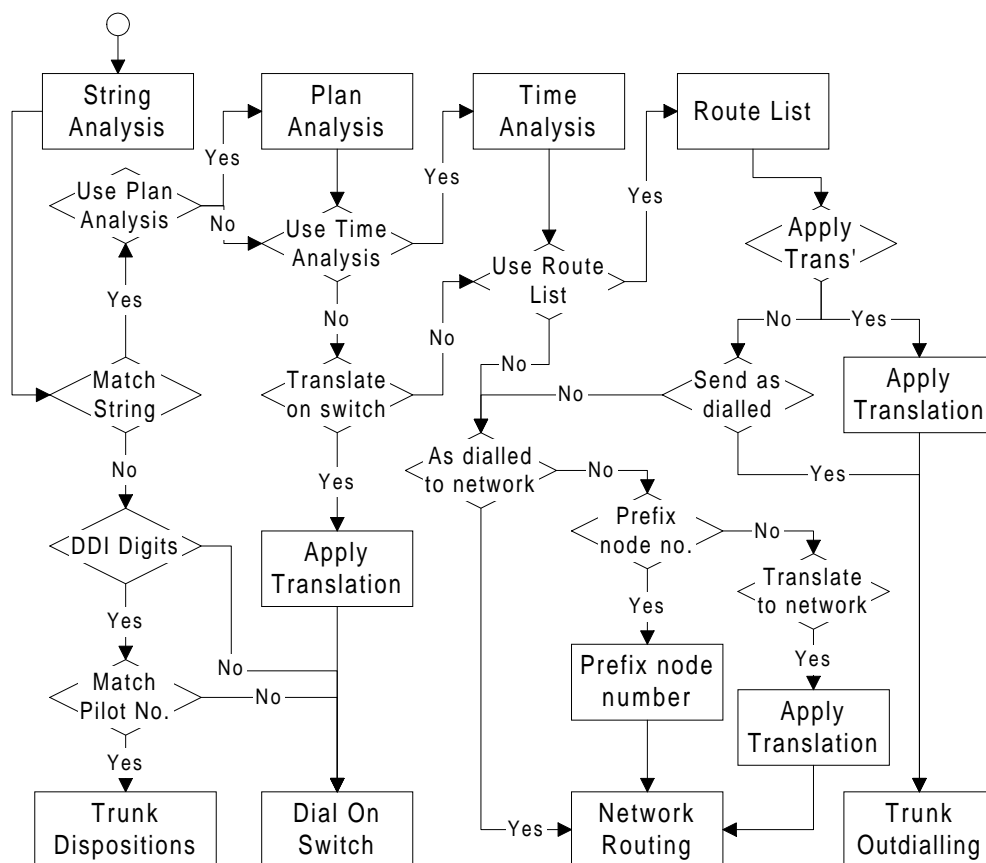
Emergency Call Routing

The ARS settings provide options to bar the dialling of numbers. Those options **must not** be used to bar the dialling of calls to national emergency numbers.

ARS Call Routing

The table and diagram below summarize how ARS routes calls.

<u>Type of Action</u>	<u>Action</u>	<u>String Analysis</u>	<u>Plan Analysis</u>	<u>Time Analysis</u>	<u>Route List</u>
On Switch	Translate on switch	Yes	Yes	-	-
Further ARS Process	Use Plan Analysis	Yes	-	-	-
	Use Time Analysis	Yes	Yes	-	-
	Use Route List	Yes	Yes	Yes	-
	Untranslated to network	Yes	Yes	Yes	Yes
Network	Prefix node number	Yes	Yes	Yes	Yes
	Translate to network	Yes	Yes	Yes	Yes
	Apply translation	-	-	-	Yes
External	Send as dialled	-	-	-	Yes



Planning and Programming ARS

Programming ARS can seem become complicated. A controlled and methodical approach, with all stages planned on paper first simplifies the task. It also allows you to keep the routing simple and understandable.

Plan First:

- **Work Out Switch Routes:**
Determine which call routes from the INDeX are available, eg. PSTN, PSTN alternate carrier, network nodes, trunk groups, etc.
- **Work Out Switch Dialling:**
Determine what numbers dialled on the INDeX require routing other than 'on-switch as dialled'. These are the strings that must be in String Analysis.
- **Work Out Translations:**
Matching the switch routes and the switch dialling to those routes determines which digit translations are required.
- **Plan String Routes:**
Decide the factors that control which strings use which routes, ie. time, who's dialling, several routes to one place, etc. Determine what other ARS stages you require.
- **Program from 'Bottom-Up':**
A Route List cannot specify a Translation until that translation has been programmed, similarly String Analysis cannot refer to a Route List until that Route List has been programmed. You must program the ARS package from the 'bottom-up', starting with the most basic elements (digit translations). Additionally ARS cannot route any calls to a network node unless that node is programmed into the network routing table (*see page 31*).

Defaulting ARS

You can reset all the ARS settings back to their default values. After defaulting it is still possible to make normal external calls.

To default the ARS settings:

1. From the **Main Menu**, select **Automatic Route Selection**.
2. Select **Default ARS**.

Setting Up Translations

ARS stores up to 250 digit translations for use with on-switch, off-switch and network calls. Translation can include deletion and replacement of digits plus insertion of the terminal's authorisation code, extension number and timed pauses.

Each translation consists of up to 11 steps, each applied in sequence to specified positions in the **original** dialled string.

- **Translation actions:**
 - Insert string.
 - Insert authorisation code.
 - Insert extension number.
 - Delete the following string.
 - Replace the following string.
 - Wait for a time period.
 - Replace the first ? digits.

The INDeX stores up to 10 authorisation codes for different PSTN providers. The code used depends on the user making the call (*see page 49*).

- You can enter wildcards into translations. The wildcard character is a '.' (decimal point or full stop). In a string to be deleted or replace, the wildcard means match any digit. In a replacement string, the wildcard means send the dialled digit.

Multiple translations for different dialled numbers should not be attempted within a single translation. For example:

- String Analysis: 123 route to Translation 1, 789 route to Translation 1 also.
- Translation 1: Step 1 replace 123 with 32. Step 2 replace 789 with 987.

The INDeX will reject calls passing through such translations.

To edit a digit translation:

1. From the **Main Menu**, select **Automatic Route Selection**.
2. Select **Digit Translation** and enter the translation number.
 - To remove an existing step select **Remove a step** and enter the step number.
 - To clear the whole translation select **Clear the translation**.
3. To add or change translation steps:
 - To add a new step either select **Insert another step** and enter the step to place it before or select **Add the next step**.
 - To change an existing route select **Replace a step** and enter the step number.
 - Select the step action required and enter the information requested.
4. Repeat for all the necessary translation steps.
5. Use the tab key to display the next translation or use **Select a translation**.

Storing Authorisation Codes

ARS digit translations can specify the insertion of an authorisation code. When this occurs, the translation inserts the code assigned to the user dialling. The INDeX stores up to 10 authorisation codes for use by users, although each user can only use one of those codes.

To store an authorisation code:

1. From the **Main Menu**, select **PSTN Access** and then **Authorisation codes**.
2. Select the code number and enter the authorisation code (up to 16 digits). The INDeX only displays the length of the code, not the actual digits.
3. To delete an authorisation code, select the code number and enter ↵.

To assign an authorisation code to a user:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Auth.code number** and select the code to use (1 to 10).

Setting up Route Lists

The only way to route external calls off-switch is via an ARS route list. Each list (up to 50) contains up to 6 call routes shown in order of preference. The INDeX controls access to the route list and individual routes in several ways:

- **User Classes:**
Users can only use a route list if one of their class of service settings matches one of the route list's user classes. Each terminal has two sets of user classes, one for daytime and the other for night service. When callers use PIN codes, the PIN code's own user classes override the normal user classes.
- **Minimum Access Requirements:**
A user can only use a route (and subsequent routes) if their **Route access level** equals or better the route's **Min.Access**.
- **Route Controls:**
If a route is busy, the call only immediately tries the next route if its **Route Access Level** equals or better the busy route's **Wait Access**, otherwise it waits for the busy route's **Busy Period**.
 - DDI Calls directed to an ARS route list can only try the first route on the route list.
- **Multiple-Route Camp On:**
As the INDeX tries each new call route, it remains camped on to the previous routes in case one becomes free.
- **Terminal or Route Specified Trunk Seizure:**
Non-network calls seize the trunk specified by the route list. If set to *extn line*, the INDeX uses the trunk or trunk group specified by the dialling terminal's **Line access** setting.
- **Call Logging Settings:**
Each route list has a call category (local, international, etc.) which the INDeX uses for SMDR/statistics usage.
- **Routing Calls on Switch:**
ARS Route Lists are meant mainly for calls going off switch. However, it is possible to route a call that has reached this stage to an on-switch destination. To do this apply a network translation that uses the switch's own network node number as the routing option.

Changing a Route List

Before entering or editing a list, the nodes and translations processes to which you wish to route calls must already exist.

Routes from a route list:

- Apply a translation.
- Prefix with network node number.
- Send untranslated over network.
- Apply translation over network.
- Send digits as dialled.

To add a route list:

1. From the **Main Menu**, select **Automatic Route Selection**.
2. Select **Route Lists** and enter the list number.
3. To change the route lists name select **Change the route list name** and enter a name (up to 15 characters)
4. To change the route lists call type (used on SMDR ports to identify calls) select **Change the call type**.
5. To alter which terminal user classes can use the route list, select **Change access for user class**. Select the class you want to add or remove to change its setting.

To add, insert or modify a route:

1. From the **Main Menu**, select **Automatic Route Selection**.
2. Select **Route Lists** and enter the list number.
3. To add a new route, select either **Insert another route** and enter the route number to place it before or **Add the next route**.
 - To change an existing route select **Modify a route** and enter the route number.
4. Select the route process required.
 - For a non-network route, either enter the trunk or trunk group directory number to use or enter * to use the dialling user's **Line Access** number.
5. Enter the route's **Minimum access level** (1 to 99).
6. Enter the route's **Wait access level** (1 to 99).
7. Enter the route's **Busy wait period** (0 to 255 seconds).

To remove a route or all routes:

1. From the **Main Menu**, select **Automatic Route Selection**.
2. Select **Route Lists** and enter the list number.
3. To clear the whole route list select **Clear the route list**.
4. To remove a route for the list select **Remove a route** and enter the route number.

Setting Up Time Maps

ARS uses time maps for its time analysis processes. The INDeX maintains four different time maps, each consisting of Day Types, a Generic Week Plan and a Year Plan of Exception Days.

The time map uses a generic week, constructed out of the day types. Each map has 6 day types, each of which divides a 24-hour day into up to 4 segments, each segment having a time category (A to F). This determines the current time category at any moment unless an exception day type has been programmed for a particular day of the year, ie. bank holidays, etc. (using the **Year plan of exception days**).

Changing a Maps Day Types

To change a day type:

1. From the **Main Menu**, select **Automatic Route Selection** and then **Time Analysis**.
2. Select **Time Category Maps** and enter the time map number.
3. Select **Segmentation plan for day types** and enter the day type.
4. To change the day types name select **Change the day type name** and enter a name (up to 8 characters).
5. To clear the current settings select **Default the partitioning**.
6. To add a new time segment (max. 4 segments) select **Split a time segment** and enter the time and then the category of the new segment (after the split).
7. To remove a time segment select **Remove a time segment** and enter the segment number.
8. To change a segment's category select **Change a time segment category** and enter the segment number and then the new category.

Changing the Generic Week

To change the generic week:

1. From the **Main Menu**, select **Automatic Route Selection** and then **Time Analysis**.
2. Select **Time Category Maps** and enter the map number.
3. Select **Generic week plan of day types**.
4. Select a day and enter the day type number.
5. Repeat for each day.

Creating Exception Days

To add/change exception days:

1. From the **Main Menu**, select **Automatic Route Selection** and then **Time Analysis**.
2. Select **Time Category Maps** and enter the map number.
3. Select **Year plan of exception days** and enter the month (1 to 12).
4. The display shows exception days as **DT** and the day type, eg. **DT-1**.
5. To reset the month select **Default this month**.
6. Select **Change a day type** and enter the **Day of month** to change, then enter the new **Day type**.
7. Repeat for each exception day in the month.

Setting up a Time Analysis Process

String and plan analysis can direct a call to a time analysis process. Each time analysis process uses one of the 4 ARS time maps. The associated map sets the current time category (A to F) when a call is made. The time analysis process (up to 50) defines a call routing option for each time category.

Time analysis processes consist of a name, a time map reference and routing options for each time category (A to F). The current time category is determined from the time map (see *"Setting Up Time Maps"* on page 52).

Routes from a time analysis process:

- Use route list.
- Prefix with node number.
- Send untranslated over network.
- Apply translation over network.

To change a time analysis process:

1. From the **Main Menu**, select **Automatic Route Selection** and then **Time Analysis**.
2. Select **Time Analysis Process** and enter the process number.
3. To add or change the processes' name select **Change the name** and enter a name (up to 8 characters) to identify the process.
4. To change the time map that the process follows select **Change the time map** and enter the map number.
5. To clear all the existing processing select **Clear all processing**.
6. To clear the processing for a category select **Clear processing for category** and enter the category.
7. To change the processing for a category, select **Change processing for category** and enter the category.
8. Select the route process required.
9. Repeat for each process category if necessary.

Set Up Plan Based Analysis

When strings analysis directs a call to a Plan based analysis process, the call follows the process route matching the dialling user's **Dialling plan number** (1 to 6). You can setup up to 50 analysis processes, each containing 6 routing options.

- **User Dialling**

If a user with their **Dialling plan number** set to **4**, dials digits which string analysis routes to a plan based analysis process, the call follows option 4 of that plan based process.

- **DDI Numbers**

If a DDI number is routed from string analysis to plan based analysis, the Dialling plan number is taken from the DDI trunks associated Call Control Plan.

You can give each dial plan number level (1 to 6) a name. This appears on the ARS, Call Control and User menus.

Routes from plan analysis:

- Apply on switch translation.
- Use route list.
- Send untranslated over network.
- Prefix with network node number.
- Use time analysis.
- Apply translation over network.

To name the plan numbers:

1. From the **Main Menu**, select **Automatic Route Selection**.
2. Select **Plan Names**.
3. Select the plan number and enter the name (up to 8 characters) or press ↵ to default to **no name**.
4. Repeat for the other plan numbers.

To change a plan based analysis process:

1. From the **Main Menu**, select **Automatic Route Selection**.
2. Select **Plan Based Analysis** and enter the process number.
3. To clear any existing details select **Clear this plan based analysis**.
4. Select **Change this analysis name** and enter a name (up to 8 characters) to identify the processes' usage.
5. Select **Change analysis processing** and enter the plan option you want to enter/change.
6. Select the routing process required.
7. Repeat for each plan number option as required.

To set a user's dialling plan number:

1. From the **Main Menu**, select **Users** and enter the appropriate number.
2. Select **Dialling plan** and enter the new dial plan number (1 to 6). The default is **1**.

Set Up String Analysis

ARS analyses the leading digits of all on switch dialling (and incoming DDI digits) for a match against a series of stored strings. If a match exists, the call then follows the routing instructions stored with the string. If no match exists, the INDeX sends the dialling on-switch for matching against a directory number.

String analysis distinguishes between strings which share the same leading digits, eg. 9010 and 901. ARS only confirms a match after entry of the first non-matching digit.

- **Example:** Suppose ARS contains routing instructions for the strings 12, 123 and 1234. If the user dials 12, ARS take no action, as there are still possible further matches than just 12. Only if the next digit dialled is not 3 does ARS applies the instructions for the string 12.

ARS ignores any * and # inserted into dialling unless there is a specific string also containing the * or # symbols:

- **Example:** Dialling a number starting 01*0 follows the same routing as a number starting 010 unless a ARS string for 01*0 exists.

Routes from string analysis:

- Apply on switch translation.
- Use route list.
- Send untranslated over network.
- Prefix with network node number.
- Use time analysis.
- Apply translation over network.
- Use plan based analysis.

To add or edit a string:

1. From the **Main Menu**, select **Automatic Route Selection** and then **String Analysis**.
2. For a new string select **Insert new string** and enter the string required.
3. To edit an existing string select **Display another string** and enter the string required or press the tab key to display the next string.
4. Select **Change string processing** and select the string routing process required.

To delete a string:

1. From the **Main Menu**, select **Automatic Route Selection**.
2. Select **String Analysis**, the INDeX displays the first stored string.
3. Select **Display another string** and enter the string required.
4. Select **Delete this string** to delete the displayed string.

Call Barring

ARS provides several methods of call barring. The methods you use depend on whether you want to do: bar a user from a particular route for a call, from any route for that call or bar all users from that call.

WARNING

Emergency Call Routing

The ARS settings provide options to bar the dialling of numbers. Those options **must not** be used to bar the dialling and connection of calls to national emergency numbers.

- **User Route Barring:**
Use the user's Route Access Level to either stop or delay them using certain routes on a route list. (See page 60).
- **User Number Barring:**
Use the user's outdialling class of service settings to stop them using any routes on a route list. Every user has separate outdialling class settings for day and night service. (See page 60).
- **INDeX Number Barring:**
Use an empty route list to bar numbers (or redirect them internally). Enter the number in string analysis and route it to the empty route list.

The INDeX also provides other means of call control:

- **Forced PIN or Forced Account Entry:**
Setting a terminal to one of these settings forces the terminal user to enter either an account code or PIN code before dialling external calls. See "PIN & Account Codes" on page 75.
- **Roaming PINs:**
Users can enter a PIN code before dialling from a terminal. The PIN code overrides the normal settings and call barring associated with that terminal. See "PIN & Account Codes" on page 75.

User Programming

Introduction to Users

The INDeX supports up to 1500 users, each with their own set of settings. Each user has a directory number but that number is not necessarily assigned to a terminal (eg. Hot desking users and ACD agents).

Normally when terminal devices are added to the INDeX, each device is allocated a directory number and a matching user though this can be disabled (*see page 17*).

Through the Directory you can change which user is assigned to each terminal. For terminals set to Hot desking (*see page 91*) or ACD operation, the unassigned users can do that themselves using the terminal's **Log on** and **Log off** controls.

Creating New Users

To create new users:

1. From the **Main Menu**, select **Directory** and then **Set up**.
2. Select **Allocate user numbers** and enter the new number or range of user directory numbers to create.

Assigning Users to Terminals

You can assign a user to a terminal or swap the terminal's current assigned user. The user's directory number then becomes the terminal's directory number.

Note that if the user directory number assigned to a terminal is changed, the membership of the original directory number in any group changes to match the new directory number.

To assign a user to a terminal:

Use for a terminal with no assigned user.

1. From the **Main Menu**, select **Directory** and then **Set up**.
2. Select **Assign user to device**.
3. Enter the user directory number you want to assign.
4. Enter the physical address of the terminal to which you want to assign the user.

To swap terminal users:

1. From the **Main Menu**, select **Directory** and then **Set up**.
2. Select **Swap users** and enter the user directory numbers to swap.

To assign a user through DT display terminals:

1. DT display terminals with no assigned user display a **LOG ON** option (*check that the terminal is not being used for Hot Desking or ACD as they also use the LOG ON option*). Press **LOG ON**.
2. You can then either enter the required user directory number directly or use the INDeX function to select an available user number.

Defaulting a User

You can reset the details of an individual user back to the default values. Defaulting a user deletes all user programmed settings except their divert all number.

To default a user:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Default user**.

Locking/Unlocking a User

The INDeX automatically locks a user if they enter the wrong terminal passcode too often. Once locked, the user cannot make external calls or access any areas of user programming requiring passcode entry.

By default a locked user can still access ARS class of service 8. This allows the dialling of emergency numbers and should not be changed.

The **Lock Status** command allows you to both manually lock and unlock a user. Note that unlocking a user also returns their passcode to its normal default.

To lock/unlock a user:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Lock status** to change the current setting.

Forced Intrusion

Two factors control forced intrusion. These are the **Barging status** of the calling user and the **Secure status** of the called user. The default settings are *cannot intrude* and *not secure*.

When a forced intrusion is invoked (if allowed), all users hear several pips before the intrusion occurs. All the parties then hear a reminder pip every few seconds during the intrusion.

To change a user's intrusion settings:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Personal status**.
3. Select **Barging status** to change its current setting:
 - *can intrude* allows the users to attempt forced intrusions.
 - *cannot intrude* bars the user from making forced intrusions.
3. Select **Secure status** to change its current setting:
 - *secure* stops other users from intruding.
 - *not secure* allows other users to intrude.

Setting a User's Directory Name

You can give each user a directory name. The user's directory name appears on the displays of other phones, the operator console directory and within the INDeX function.

The **X-directory** option can be used to remove the name from display within the INDeX function (It also stops the sending of the extension number to the line on outgoing calls).

To change a user's directory name:

1. From the **Main Menu**, select **Directory**.
2. Select **User identity** and enter the user's directory number.
3. Select **Name** and enter a name of up to 16 characters.
4. Select **Change sort option** to set how the name is sorted in the INDeX function (ie. *As entered* or *Last name first*).

X-Directory

The **X-directory** option can be used to remove a user's name from display within the INDeX function. This also stops the sending of the extension number to the line on outgoing calls.

To set the terminal's directory name as X-directory:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Personal status**.
3. Select **X-directory** to change the status. Change it to **Yes** to stop the user's name appearing in the Index function of other terminals.

Personal CLI

On normal ISDN calls, the PSTN provider provides the CLI sent. For calls across ETSI compliant ISDN connections (BRI and PRI), the INDeX supports the sending of a user specific CLI.

R2 MFC trunks (provided by E1/R2 PRI cassettes and R2/DID ALOG cassettes) use a CLI set as the INDeX's Installation number (*see page 13*).

To set a user's personal CLI:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Extended functions**.
3. Select **Personal CLI** and enter the CLI number to send for the user's calls.
 - This must be a valid number for calls to be dialled back to the INDeX on the same trunk. If the number is not valid, the PSTN provider may either replace it with their own CLI for the trunk or reject the call (this varies between PSTN providers).
4. To send the Personal CLI on outgoing calls, select **CLI on outgoing ISDN** and set it to **yes**.
5. To send the Personal CLI on incoming calls, select **CLI on incoming ISDN** and set it to **yes**.

Outgoing Call Controls

The only way to make outgoing PSTN calls (excluding network calls) is via an ARS route list. Each user has several settings that control which ARS route lists they can use and which routes on a route list.

- **Class of Service/User Class:**

Each route list belongs to some or all of the ARS user classes (numbered 1 to 8). Each user also belongs to a set of day time and night time outdialling user classes. The user can only use a route list if they belongs to at least one of the same user classes as the route list.

- The default user classes in ARS are 1: local, 2: national, 3: international and 8: emergency calls.

- The default settings for users are classes 1, 2 and 8 during day service; 1 and 8 during night service.

- **WARNING:** ARS User class 8 is by default used for calls to national emergency numbers. No call barring should be applied to the routing of these numbers. Locked user's can still use route lists in user class 8 for emergency numbers.

- **Route Access Level:**

Access to each route on a route list is controlled by the dialling user's route access level. This controls whether the user can use a route and whether they must wait before trying the next route on a route list (*see page 50*).

- **External Line Selection:**

When a route list leads to an external route, it may specify a particular trunk or trunk group or use the trunk group set by the dialling user's **Line access**.

To change a user's external call settings:

1. From the **Main Menu**, select **User** and enter the user's directory number.
2. Select **Line access** and enter the trunk or trunk group directory number for routing external calls (press **↵** to set **no dial 9 dn**).
3. Select **Auth.code number** and select the code to use from the authorisation codes table (*see "Storing Authorisation Codes" on page 49*).
4. Select **Personal status** and then **Route Access Level**. Enter the level required (between 1 and 99). A high value allows access to more routes. Press **Esc** when set.
5. Select **Day-time outdialling**. To change the setting for a class, enter the user class number. Then press **Esc**.
6. Repeat for **Night-time outdialling**.

Setting the User Type

Users can access different sets of functions depending on their User type. Note that some User types only work on certain types of terminal.

The user types are:

- **Standard:**
Used for normal users.
- **System Manager:**
Provides a DT display terminal user with a **•SETUP** function to access date, time, night service and ACA message recording. It also supports silent intrusion if setup (see *"Silent Intrusion" on page 81*).
- **ACD:**
Used for TT turret users to provide ACD operation controls (can also be used by a DT5 terminal user if required).
- **Supervisor:**
The same as ACD but also allows the user of a TT turret to use silent intrusion if setup (see *"Silent Intrusion" on page 81*).
- **Reception, Guest and Service:**
See *"Guest Services" on page 86*.

To change a user's user type:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Personal status**.
3. Select **User type** to display the possible settings. Select the required setting.

Extension Feature Access

You can prevent users from directly using certain keys. Those keys are Group, No Calls and Divert. This does not stop indirect changes (eg. switching Divert on to switch Group off) or remote changes by other devices (eg. operators consoles).

To change a user's feature access:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Personal status**.
3. Select **Divert feature access**, **No calls feature access** or **Group feature access** to toggle its setting (**no** locks the feature's key usage).

Language Setting

For DT/TT display terminal users can use a specific language or the INDeX's default language (see *page 14*). Note that display terminal user's can alter this setting directly from their terminal (see *the appropriate user guide*).

To set a user's display language:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Personal status**.
3. Select **Language** and then select the required language (**Default** means use the INDeX's default language).

ARS Special Features

When the INDeX routes the user's calls via an ARS route list (all external calls), it provides two extra features:

- **Top Price Route Alert:**
The first route on a route list is the preferred route. If ARS routes the call by an other route on the list, it can display a message.
- **ARS Busy Wait Override:**
If a route option on an ARS route list is not free, the caller may have to wait a short period before ARS tries the next route list option. Terminals with busy wait override on can cancel the wait period by pressing **Intrude**.

To switch a user's ARS features on/off:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Personal status**.
3. Select **Top Price Route Alert** to switch the setting.
4. Select **Busy Wait Override Key** to change the current setting.

Remote Forward (Forward Bar)

Remote forwarding allows user's to set their divert all number and switch its use on or off from another terminal. The remote forward option can be used to bar the remote forwarding of a user.

To allow/bar remote forwarding by a user:

1. From the **Main Menu**, select **User** and enter the user's directory number.
2. Select **Personal status**.
3. Select **Remote forward** to switch it between *enabled* and *disabled*.

Hotline

The hotline function allows a user to automatically dial a number if their associated terminal is left off-hook for a set period. The programmed hotline number can be a user, group, speed dial number or a line number. You can vary the timeout before the INDeX automatically dials the number, including a zero timeout (ie. dial immediately).

To change a user's hotline number settings:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Extended functions**.
3. Select **Hot line number**.
 - a. To dial a terminal or group, enter the directory number.
 - b. To dial a speed dial, enter **S** followed by the speed dial number. Both personal and system speed dials can be used for hotline operation.
 - c. To cancel the hotline, just press ↵ to set **no hotline**.
4. Select **Hot line timeout** and enter the timeout required in seconds.

Terminal Programming

Terminals and Directory Numbers

Normally each terminal device on the INDeX is assigned a single user and user directory number (see "*Assigning Users to Terminals*" on page 57).

It is possible to have a terminal with no assigned user directory number. In that case, the terminal is referred to in commands by its physical address (eg. **1/2/0**, that is cabinet number / slot number / channel number).

Defaulting a Terminal

You can reset the details of an individual terminal back to its default values. Defaulting a terminal also deletes any terminal user programmed features except the divert all number.

To default a terminal:

1. From the **Main Menu**, select **Terminal** and enter the terminal's directory number.
2. Select **Default terminal**.

Setting a Terminal's Identification

You can give each terminal an identification name. The INDeX uses this within programming menus and reports.

To change a terminal's identification:

1. From the **Main Menu**, select **Terminal** and enter the terminal's directory number.
2. Select **Identification** and enter a name of up to 15 characters.

Multi-Tenancy Services

Introduction

You can divide the INDeX into tenancies. You can then allocate to which tenancy trunks, terminals and system speed dials belong.

The INDeX bars the dialling of calls between devices belonging to different tenancies. The INDeX function also only displays system speed dials that belong to the same tenancy or are set for all tenancy display.

- **Areas:**
The switch also divides into areas with each user directory number and call control plan belonging to an area. Areas are used for controlling night service (*see page 65*).
- **INDeX Function:**
The INDeX function on DT/TT display terminals only displays user names associated with terminals in the same tenancy. You can also set each system speed dial to display only in a particular tenancy, in all tenancies or in no tenancies (*see page 84*).
- **De-restricted Devices:**
Terminals and trunks with no defined tenancy can make, receive and transfer calls between tenancies. This allows central operator type services in multi-tenancy buildings.

Setting the Tenancy Area Ratio

Four ratios of tenants to areas exist, each dividing the INDeX into 250. The ratios are:

- 250 areas only (ie. all device are in the same single tenancy)
- 10 tenancies and 25 areas.
- 25 tenancies and 10 areas.
- 250 tenancies only (ie. all users and call control plans belong to the same area).

To change the tenant to area ratio:

Warning: This action defaults all existing tenant and area settings and night service timetable links.

1. From the **Main Menu**, select **System**.
2. Select **Tenant to area ratio** and select the new ratio required.

Setting a Terminal or Trunk's Tenancy

A trunk or terminal's tenancy sets which tenancy it belongs. The trunk or terminal can then only call other device in the same tenancy.

To set a terminal or trunk's tenant/area settings:

1. From the **Main Menu**, select **Trunk** or **Terminal** and enter the directory number.
2. Select **Tenant** and enter the tenancy number.
 - Just press ↵ to set the device as **de-restricted** (ie, belonging to no tenancy).

Night Service

Overview of Night Service

The INDeX is divided into areas. Each area is then linked to one of four night service timetables.

Users and Call Control Plans are associated with an area. They then go in and out night service following the areas linked night service timetable.

- **Call Control Plans:**

During night service, incoming calls switch use night dispositions and night announcer plan rather than the day dispositions and day announcer plan (see *"Incoming Call Routing (Dispositions)" on page 39*).

- **Users:**

During night service, users switch from their day-time outdialling class of service settings to their Night-time outdialling class of service settings (see *"Outgoing Call Controls" on page 60*). This affects what route lists for external calls ARS allows users to dial.

- **Tenancies:**

The switch also divides into tenancies with each trunk and terminal belonging to a tenancy. Tenancy are used to restrict calls between trunks and terminals (see *page 64*).

- **System Manager Terminals:**

Terminals with their **User type** set to **System manager** can put areas into night service independent of the night service timetables (see *page 61*).

Setting the Tenancy Area Ratio

Four ratios of tenants to areas exist, each dividing the INDeX into 250. The ratios are:

- 250 areas only (ie. all device are in the same single tenancy)
- 10 tenancies and 25 areas.
- 25 tenancies and 10 areas.
- 250 tenancies only (ie. all users and call control plans belong to the same area).

To change the tenant to area ratio:

Warning: This action defaults all existing tenant and area settings and night service timetable links.

1. From the **Main Menu**, select **System**.
2. Select **Tenant to area ratio** and select the new ratio required.

Linking a User to an Area

To set a user's area:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Area** and enter the required area.

Linking a Call Control Plan to an Area

To set a call control plan's area:

1. From the **Main Menu**, select **Call control plan** and enter the plan's number.
2. Select **Area** and enter the required area.

Set Up the Night Service Timetables

The INDeX has four night service timetables. Each timetable allows two different periods of night service for each day of the week. The last period of night service on any day continues over to the next day.

Note: All times are entered in 24-hour clock format.

To setup a night service timetable:

1. From the **Main Menu**, select **Night Service**.
2. Select a timetable from **Night service time table 1** to **Night service time table 4**.
3. Select a day from **1. Mon** to **7. Sun**.
4. In **Period 1**, enter the start and end times for a lunch period.
 - If there is no lunch period, leave the entries blank and press **Tab** to move right to **Period 2**.
5. In **Period 2**,
 - Enter a start time (for night service) that is the end of work that day.
 - Enter an end time (for night service) that is the start of work on the next day.
6. Complete the timetable for each day of the week.

Link Areas to N/S Timetables

The **Night Service selections** table links each area with one of the four night service timetables.

To link tenant/areas to night service timetables:

1. From the **Main Menu**, select **Night Service**.
2. Select **Night service selections**.
3. To link an area to a timetable, enter the area and timetable with each part separated by a **/**.
4. To remove a link, re-enter just the area.

Cordless Integration

Introduction

The INDeX supports connection to an INDeX DECT. That cordless system uses the DECT standard.

Each cordless extension requires a two-wire port link from the INDeX. Full details are given in the INDeX DECT Installation Manual.

- **INDeX DECT V24 Integration:**

A permanent serial lead link between the INDeX and INDeX DECT provides enhanced features for INDeX DH1 cordless handsets. This is fully covered by the INDeX DECT Installation Manual.

Mobile Number

In some cases, users of cordless extensions attached to the INDeX may still also have normal desk telephones. If the directory number of the cordless extension is entered as the desk telephone's **Mobile twin number**, the INDeX provides several features:

- Calls to the desk telephone also ring the cordless extension simultaneously.
- If either the desk telephone or cordless extension is busy, then calls to the desk telephone receive busy (if the desk telephone has a Divert on busy set then that is used).

Though intended mainly for users with a desk and cordless extensions, these features can be used with any two extensions. **Mobile twin number** does not work with the Peacock cordless system.

To enable mobile number use:

1. From the **Main Menu** select **System** and then **Switch licences**.
2. Select **Mobile number** and enter the licence key.
 - The licence key will include **Option 1** if it is also required for INDeX DECT V24 Integration (*refer to the INDeX DECT Installation manual*).

To associate a mobile (cordless) with a terminal:

1. From the **Main Menu** select **Users** and enter the user directory number of the main phone (the one that will be called by other users).
2. Select **Extended functions**.
3. Select **Mobile twin number** and enter the directory number of the secondary phone (the one that should ring simultaneously with the main phone). Note that the secondary telephone's **Mobile Twin Number** is set to that of the main phone.

Automatic Call Announcement

Introduction

ACA allows presentation of message sequences to incoming trunk calls. The message occurs in parallel with call presentation.

ACA menus allow you to organise the messages into 16 announcer plans. You can use the same message as a part of several plans if required. As well as instructions to play particular messages, announcer plans can include steps for silence, music and repeat sequences.

Different trunks can hear different message sequences and the sequence can vary according to whether a trunk is in day or night service.

– **ACA/DMOH Cassette:**

This cassette holds three 16 second modules and one 60 second module onto which music can be recorded. Each module can be switched from ACA (single play) to MOH (continuous play) mode.

Copyright Warning

When using music from an external source or recorded onto cassette modules, users should be aware of and conform to the local requirements of copyright and public performance.

Naming Message Modules

You can name each message module on an ACA card to help identify its usage.

To change a module's name:

1. From the **Main Menu**, select **Automatic Call Announcing**.
2. Either press **Tab** until the card carrying the module is shown or select **View ACA card** and enter the card's address.
3. Select **Edit message name** and enter the directory number of the module to name.
4. Enter a name (up to 15 characters).
5. Escape back to the **Main Menu**.

Recording Messages

You can play and record messages using a DT display phone with its user's **User type** set to **system manager** (see page 61). Before recording onto a module, its secure status must be set to **No** (during which time any announcer plans using that module will not run).

To change a module's secure status:

1. From the **Main Menu**, select **Automatic Call Announcing**.
2. Either press **Tab** until the INDeX displays the card carrying the module to record or select **View ACA Card** and enter the card's address.
3. Select **Toggle secure** and enter the directory number of the module to record. Set the module's secure status to **No** for recording.

To record from a System Manager DT display terminal:

1. At the terminal, press **•SET UP** and then **•ACA MSG**. Enter the directory number of the module to record.
2. Press **•SECURE** to display the module's secure status. Press **•CHANGE** to set the status to **Unlocked** and then press **•DONE**.
2. Press **•PLAY** to play the current recording. Press **•STOP** to stop the message.
3. Press **•SOURCE**. Press **change** and select the source from which to record. The options are **TERMINAL** or **INPUT FROM EXT** (*the cabinet jack socket*). Then press **•DONE**.
4. To record from the selected source, press **•RECORD**. The INDeX asks for confirmation, press **•RECORD** again. Record your message and then press **•STOP**.
5. Press **•PLAY** to playback the recording, press **•STOP** to stop the message.
6. When completed, press **•SECURE** to reset the module back to secure status.

Setting up Announcer Plans

The INDeX can have up to 16 announcer plans, each of 10 steps, steps being play an ACA module, wait (silence), music (from the trunks music source) or go to another step.

To edit/create an announcer plan:

1. From the **Main Menu**, select **Automatic Call Announcing**.
2. Select **View plan** and enter the plan number (1 to 16).
3. Select **Edit plan** to edit the displayed plan. A → symbol shows the current selected plan step.
4. Use the tab key to change the selected step.
5. To enter or change the action of the currently selected step, select **Enter action** and:
 - To play an ACA module, enter its directory number.
 - To wait for *n* seconds enter **Wn** (*n* = 0 to 255 seconds).
 - To play the calls trunk music source for *n* seconds enter **Mn** (*n* = 0 to 255 seconds).
 - To go to step *n* (eg. to loop the plan) enter **Gn**.
6. To change the duration of the currently selected step, select **Enter duration** and enter the new value (Note: This option cannot be used to change the length of ACA messages).
7. If the selected step is a message module, you can select whether the INDeX can place the call whilst the messages playing.
 - Select **Toggle cut in** to set it to **Yes** or **No**.
 - When set to **Yes**, if the device against which the call is queued becomes free during that step, it rings and the call can be answered. If set to **No**, the device does not ring until that step of the ACA plan is finished.
8. To delete a step from the plan, select **Delete step** and enter the step number.

Linking Announcer Plans to Trunks

You can link each trunk to an announcer plan for day calls and to another plan for night service calls.

To link announcer plans to a trunk:

1. From the **Main Menu**, select **Call control plan** and enter the number of the plan associated with the trunk.
2. Select **Call distribution**.
3. Select **Day announcer plan** and enter the announcer plan to use or press ↵ to set **No plan**.
4. Select **Night announcer plan** and enter the announcer plan to use or press ↵ to set **No plan**.
5. Escape back to the **Main Menu**.

Changing Module Type

Modules in an ACA cassette can act either as message (*msg*) or music on hold (*moh*) sources.

- **msg**: The module acts as an ACA message module. When accessed it plays once from the start and then stops.
- **moh**: The module acts as a music on hold source. When accessed it plays in a continuous loop.

To change the function of an ACA cassette module:

1. From the **Main Menu**, select **Automatic Call Announcing**.
2. Either press **Tab** until the card carrying the module is shown or select **View ACA card** and enter the card's address.
3. Select **Toggle type** and enter the directory number of the module to change.

Music-on-Hold

Music-on-Hold Sources

Music-on-Hold sources are:

- **INDeX External Music:**

An external music source can be connected directly to the INDeX via the jack socket on the Control Cabinet.

- **ACA/DMOH Cassette:**

This cassette holds three 16 second modules and one 60 second module onto which music can be recorded. Each module can be switched from ACA (single play) to MOH (continuous play) mode.

Copyright Warning

When using music from an external source or recorded onto cassette modules, users should be aware of and conform to the local requirements of copyright and public performance.

Providing Trunk Music-on-Hold

Each trunk on the INDeX can set which available source it uses for music-on-hold by specifying the source's directory number. This trunk also uses that source when ACA specifies music.

To change a trunk's music source:

1. From the **Main Menu**, select **Call control plan** and enter the number of the plan associated with the trunk.
2. Select **Music on hold** and enter the directory number of the required Music-on-Hold card. To select the INDeX's own external source if connected, just press ↵.
3. Escape back to the **Main Menu**.

Recording Music

The process is the same as for recording ACA messages, see "Recording Messages" on page 69.

DISA

Introduction

The INDeX can allow external callers to dial numbers just as if they were at an extension on the INDeX. This is called Direct Inward System Access (DISA).

To use DISA, the caller must have a DTMF phone and dial in on the number of a trunk setup for DISA operation. The INDeX answers the incoming call with a tone and then waits for the caller to enter a PIN code. If the PIN code is valid, the caller hears dial tone and can now dial the number they require.

To set up DISA requires the INDeX to have an AC15 ALOG Cassette. Each DISA call require the use of two AC15 channels.

Each PIN code stored by the INDeX has its own set of ARS user class settings and an associated user directory number. After entering a valid PIN code, the DISA caller adopts the settings of the PIN code they used.

WARNING

Empty PIN Table

If the INDeX PIN table is empty, the INDeX accepts any PIN entered. For security, always implement DISA with validation PIN codes in the PIN table.

Set Up DISA PIN Codes

The INDeX stores up to 200 PIN codes (of up to 6 digits). It uses these for DISA and for other features (see *"PIN & Account Codes" on page 75*).

Each PIN code has its own ARS user class settings and an associated user directory number. These become the DISA caller's settings when they call.

To add a PIN code:

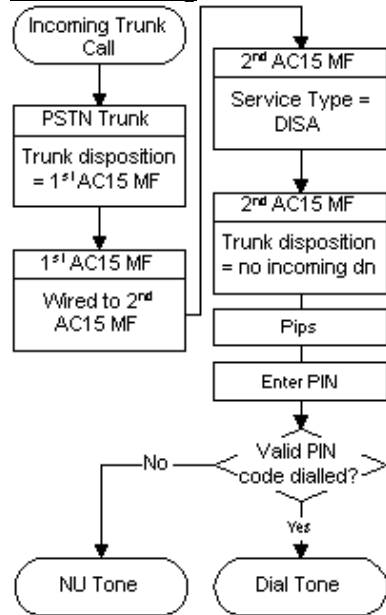
1. From the **Main Menu**, select **System** and then **P.I.N table**.
2. Press tab to display the different pages of PIN codes.
3. Enter the new PIN code.
4. Enter the Class of service settings for the PIN.
5. Enter the terminal directory number to associate with the PIN code.
6. Repeat for any other PIN codes required or escape back to the **Main Menu**.

To delete a PIN code:

1. Use the same process as for adding and repeat the PIN code number you wish to remove.

Set Up a DISA Trunk

DISA Call Routing:



The trunk on which the DISA caller arrives must loop the call off and then back on switch via two AC15 trunk.

The loop off section via the 1st outgoing AC15 trunk is achieved by Call Distribution dispositions.

The loop on section via the 2nd incoming AC15 circuit requires the two AC15 trunks to be wired together. The **Service type** and **Call Distribution** dispositions of the 2nd incoming AC15 circuit create the DISA service.

The programming shown below assumes a single trunk routing to a single DISA link. More complex setup can be achieved using groups.

To setup the first incoming call trunk:

1. From the **Main Menu**, select **Call control plan** and enter a plan number.
 - a. Select **Identification** and enter a name that indicates the plans use for DISA.
 - a. Select **Call distribution**.
 - b. Set **Day disposition 1** to the directory number of the outgoing AC15 trunk.
 - c. Set the remaining dispositions to suitable alternatives such as the operator.
 - d. Repeat for the **Night dispositions**.
 - e. Press **Esc** to return to the **Main Menu**.
2. Select **Directory** and then **Trunk identity** and enter the trunk's directory number.
 - a. Select **Call control plan** and enter the plan's number.

To setup the outgoing AC15 trunk:

1. The outgoing AC15 circuit requires no special settings and can be left at its default values.

To setup the incoming AC15 trunk:

1. From the **Main Menu**, select **Trunk** and enter the incoming AC15 trunk's directory number.
2. Select **Service type** and set this to **DISA**.
3. Select **DDI Line** and enter **0** to set it to **yes**.

PIN & Account Codes

Forced PIN or Account

The dialling of a number starting with the **PSTN access digit** (see page 16) indicates an external call. For users set to forced pin or forced account it also triggers the forced pin or account function. This includes the use of speed dials starting with the **PSTN access digit**.

In both cases, if the INDeX logs the calls, the account or PIN codes appear with the call details on the SMDR call log output (see page 94).

To set a user to forced account or forced PIN:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Personal status** and then select **Forced PIN or Account**.
3. Select **Account forced, PIN forced** or **not forced**.

Account Codes

You can program the Accounts table with up to 200 account codes (of up to 12 digits). When the INDeX receives an account code, it verifies the code against its Accounts table entries before allowing the call to continue (except System speed dial account codes, which are not verified).

If the account code table is empty then the INDeX accepts any code users enter without validation.

The method of entering account codes at terminals depend on the type of terminal (refer to the appropriate user guide). Terminals use account codes in two ways:

- **Forced account:**
You can set a user to have to enter an account code after they start dialling an external call (see “Forced PIN or Account” on page 75). The INDeX checks the code entered for a match in the Accounts table before allowing further dialling.
- **Voluntary account:**
Any terminal user can enter an account code during a call.

To add an account code:

1. From the **Main Menu**, select **System** and then **Accounts table**.
2. Enter the new account code.
3. Repeat for any other account codes required.

To delete an account code:

1. Repeat the process for adding an account code and enter the number to delete again.

Pin Codes

The INDeX's PIN table stores up to 200 PIN codes of up to six digits. If the PIN table is empty then the INDeX accepts any PIN codes that is entered.

Each PIN code has its own ARS user class settings and an associated terminal directory number. When a caller uses a PIN number, the PIN's associated user's settings override those of the dialling terminal.

The method of entering PIN codes at terminals depends on the terminal type (*refer to the appropriate user guide*).

- **Forced PIN:**

On terminals set to forced PIN (*see Forced PIN or Account*), after starting any external call, the user must enter a valid PIN before the INDeX allows dialling to continue.

- **Roaming PIN:**

Roaming PIN allows users to override the call barring on any terminal by using those of their own personal PIN number. The method of invoking this function depends on the type of terminal (*see the appropriate user guide*).

- **DISA:**

DISA allows external callers to connect to the INDeX and then dial as if they were an on-switch user (*see page 73*).

To add a PIN code:

1. From the **Main Menu**, select **System** and then **P.I.N table**.
2. Press tab to display the different pages of PIN codes.
3. Enter the new PIN code.
4. Enter the PIN code's class of service settings.
5. Enter the user directory number to associate with the PIN code.
6. Repeat for any other PIN codes required.

To delete a PIN code:

1. Re-entering an existing PIN code removes that PIN code.

System Services

Automatic Call Back Cancellation

Terminal users can invoke call back functions from their terminal (call-back when free, call back when next used). The INDeX automatically cancels any call back that does not take place within the period of the **Call back cancellation** time-out.

To change the call back cancellation timeout:

1. From the **Main Menu**, select **System** and then **Timeouts**.
2. Select **Call back cancellation** and enter the next cancellation time in minutes (default 120 minutes).

Automatic Break-In

'Break-in' covers the automatic routing of an incoming trunk call back off switch by setting a trunk disposition to a speed dial. The call can be rerouted to a specific line number (if an AC15 tie line or digital PSTN line) or to the network routing table on a network circuit or tie line. You can use any disposition; thus you can present the call on-switch first and then off-switch if unanswered.

The INDeX does not apply ARS to calls routed using a speed dial as a line disposition.

If the network route or line is busy, the call queues for the **wait for external route** time-out, as defined for the PSTN trunk, before the INDeX tries the next disposition of the incoming trunk.

– **Analogue Trunks:**

Break-in **must not** be used to reroute call back out on analogue PSTN trunks.

Passwords

The INDeX supports 8 six-character programming passwords. Through the **Permissions list** (see page 78), the password you use to log on determines which menus you can see and which of settings you can change.

When the INDeX is first started or after a database reset (see page 11), it requires its default password. It then requests a new password that then becomes its Engineers password.

Three incorrect password entries will lock the INDeX serial port for one hour. This does not affect the other serial ports. The lock-out can be cleared before the hour expires by removing power from the INDeX for a few minutes.

If you log on with the top-level password (called the Engineers password), you can change the INDeX programming passwords including the Engineers password. Note that if you then forget the passwords you may require Lucent Technologies assistance to log-on again (for which charges may be made).

To change a password:

1. From the **Main Menu**, select **System**.
2. Select **Passwords**.
3. Select the password to change and enter the new password (up to 6 characters). Remember that the INDeX is case sensitive.

Permissions List

Any person programming the INDeX must use one of its eight passwords to log on. The password used to log on determines which menus and sub-menus they can use while programming. The permissions list displays the menus and sub-menus that each password can access.

If changing permission levels, remember that a password may be set so that whilst the user cannot change a menus options, they can view and report the settings to a maintainer.

To view/change the permissions list:

1. From the **Main Menu**, select **Permissions list**.
2. The list displays only the menus and commands that you can access (marked **X**) and whether users with lower passwords can also access them. An * against items indicate that they have sub-menus.
 - **To display the menu settings:** Select the menu name and press ↵. Press **Esc** to return to the top level.
 - **To change access permission:** Enter the menu number followed by / and the password level number before pressing ↵.

To default the permissions list: (Password level 1 users only)

1. From the **Main Menu**, select **Permissions list**.
2. Enter **DEFAULT**.

Queuing Priority

The INDeX queues calls to a busy extension in order of priority. For an internal call to queue, the user must select camp-on after hearing busy tone. When calls have the same priority, the INDeX queues the calls on first come first served basis.

In default trunks have high priority and terminals low priority. The aim of this is to bring external calls to the front of a call queue.

To change a trunk or terminal's priority:

1. From the **Main Menu**, select **Users** or **Call control plan** and then **Call distribution**.
2. Select **Priority** and enter the new value between **0** (high priority) and **15** (low priority).

Modem Services

Some PSTN providers support 3.1KHz audio services. These services increase the reliability of analogue modem calls when routed over digital trunks.

You can set a terminal on the INDeX to request a 3.1KHz Audio service when routed via a digital trunk. Note that the PSTN provider may not support the service or may charge for the service and need to enable it first.

To set a terminal as a modem port:

1. From the **Main Menu**, select **Terminal** and enter the terminal's directory number.
2. Select **Port/type** until it displays **Modem port**.

System Alarms

The INDeX supports system alarms to users and groups of users. Up to 10 system alarms can be set.

Each alarm includes a setting for which group or extension it should ring. Any group member unavailable or busy at the time of the alarm does not receive it.

Individual users can also set their own personal alarms (*refer to the appropriate user guide*).

To set a system alarm:

1. From the **Main Menu**, select **System** and then **System Alarms**.
2. Use the **Tab** key to select the alarm to alter.
3. Alter the alarm setting as required:
 - **Change day:**
Sets the day (*Monday* to *Sunday*) or type of day (*Every Day*, *Week Day* or *Week End*) on which the alarm should occur.
 - **Enter time:**
Sets the time (in 24-hour format) at which the alarm should occur.
 - **Enter target DN:**
Sets the group for which the alarm is intended.
 - **Change type:**
Select *Ring* (triple ring), *Music* (INDeX music on hold), *ACA msg* or *DMOH*.
 - **Enter msg DN:**
Sets the directory number of the ACA module to use if you selected *ACA msg* or *DMOH* for the alarm type.
 - **Enter Message:**
Defines a 16 character message to display on suitable terminals when the alarm occurs.
4. To switch the alarm on, use **Set/Clear** and check the **STATE** setting displayed.

Absence Messages

The INDeX supports the use of absence messages on DT and TT display terminals. When set by the user, the message is displayed on their phone and also on the display of phones that ring them.

When setting this function, the terminal user can enter their own message or select from 10 messages stored on the INDeX. They can then append up to 16 characters to the INDeX message.

To alter the INDeX's absence messages:

1. From the **Main Menu**, select **System** and then **Absence Messages**.
2. Select the message to alter and enter the required text.

Silent Intrusion

Silent intrusion is the same as forced intrusion except that the parties in the call do not hear any warning pips during the intrusion.

WARNING

Use of Silent Intrusion

The use of silent intrusion is subject to national regulations. Lucent Technologies will not provide the licence key for silent intrusion until satisfied that the requirements of those regulations have been met.

A. Enter the silent monitoring licence key:

1. From the **Main Menu**, select **System** and then **Switch Licences**.
2. Select **Silent Intrusion**.
3. Enter the INDeX's licence number for this feature.

B. Create the monitor group:

1. Create a group (see "*Groups*" on page 82) containing the terminals to be monitored.
2. Check that the **Secure status** (**Users > Personal Status > Secure status**) of each terminal is set to *not secure*.

C. Setup the monitoring user:

1. From the **Main Menu** select **Users** and enter the user's directory number.
2. Select Monitor group and enter the directory number of the group to be monitored.
3. Select **Personal status**.
4. Select **User type** and set this to either *supervisor* or *system manager*.
 - *supervisor*: Use for ACD terminals.
 - *system manager*: Use for non ACD user. Also provides the user with controls to set date, time, night service and ACA options.
5. Select **Barging status** and set this to *can intrude*.

D. Invoking silent intrusion from a terminal:

1. Whilst idle, press **•LISTEN** and enter the target number. If the target is idle you hear a repeated tone. If the target is involved in a call you will immediately be able to overhear that call.
2. Whilst monitoring a call the terminal has several options:
 - **•INTRUDE**: Operates as a normal forced intrusion.
 - **•REVIEW**: Connects the supervisor with the monitored extension once it finishes its current call.
3. Another terminal can also overhear the call by monitoring the first supervisor. Their **•INTRUDE** and **•REVIEW** function act on the first supervisor and not the monitored extension. To do this the first supervisor must be in the second supervisor's monitor group.

Groups

Overview of Groups

Groups allow you to access several terminals or trunks via a single directory number (ie. the group number). The INDeX uses groups for call presentation, page calls, call pick-up, etc.

Groups allow you to maximise the availability of trunks for outgoing calls and the availability of users to answer calls. Groups are also an important aid to programming as you can copy device settings from one device to a group.

Each group requires a directory number, a **Group type** (see *below*) and a list of members. You can also add a group name for display on suitable terminals.

Group Types:

The **Group type** controls call presentation as follows:

- **Collective Group:** The INDeX rings all the free members at the same time.
- **Sequential Group:** The INDeX rings the first free member in the group. If unanswered the INDeX tries the next free member and shuttles the call between these two members until answered. This tends to concentrate calls toward the start of the group.
- **Rotary Group:** The INDeX rings the first free member after the last member rung. If unanswered it tries the next member. This tends to distribute calls evenly across the group.
- **Longest Waiting Group:** The INDeX presents the call to the group member which has been free for the longest.
- **Trunk & Supergroups:** Trunk groups and supergroups can only be rotary or sequential.

The following notes affect the operation and usage of groups:

- **Group Capacity:**
The message "*grp table full*" indicates that the INDeX has reached its capacity of groups and group members. Whilst logging on, the display shows the INDeX's remaining group cells capacity (see *page 9*). Group cells approximate to the number of groups plus the number of group members.
- **Automatic Groups:**
The INDeX maintains two automatic groups into which it places trunks (group 90) and terminals (group 10) when they are allocated directory numbers.
- **Out-of-Group:**
Users can take their terminal out-of-group (*refer to the appropriate terminal guide*). If all group members are out-of-group and the INDeX has no other dispositions for a call, it forces the first member (unless an operator's console) back into group.
- **Busy Group:**
A group only returns busy if all in-group members are busy.
- **Supergroups & Nested Groups:**
The INDeX allows a group to be included in another group (ie. be a nested group within a supergroup). Note that the supergroup can only be rotary or sequential.

Creating & Naming a Group

Use the following processes to create a group.

To create a new group:

1. From the **Main Menu**, select **Directory**.
2. Select **Groups** and enter the directory number required for the group.
 - A warning will appear if the directory number is already being used.
 - If the Group Identity menu appears, then the directory number is already being used for a group.
 - If **Number not in use, allocate now? [Y/N]** appears, enter **Y** to begin using that directory number for a group.
3. Select **Name** and enter a name (of up to 16 characters) for the group.
4. Select **Sort option** and select how the group's name should appear within the INDeX function (ie. **As entered** or **Last name first**).
5. Select **Group type** and from the list displayed select an option.
 - **sequential**: Use for a group of user numbers. Calls to the group ring the first free member. If not answered they then ring the next free member and shuttle between those two members until answered.
 - **rotary**: Use for a group of user numbers. Calls to the group ring the first free member after the last member rung. If unanswered the next member is tried.
 - **collective**: Use for a group of user numbers. Calls to the group ring all free members at the same time.
 - **longest waiting**: Use for a group of user numbers. Calls to the group go to the member that has been free for the longest.
 - **trunk sequential**: As per sequential but used for groups of trunk numbers.
 - **trunk rotary**: As per rotary but used for groups of trunk numbers.

Adding & Deleting Group Members

To add group members:

1. From the **Main Menu**, select **Group** and enter the group's number.
2. Select **Add to group** or **Insert into group**.
 - If you selected **Insert into group**, enter the directory number of the existing member after which you want the new members added.
3. Enter the directory number to add or a range of members to add (dn1-dn2).
4. Repeat until you have added all the members that you want to add, then press **Esc**.

To delete group members:

1. From the **Main Menu**, select **Group** and enter the group's number.
2. Select **Delete members**.
3. Enter the directory number to delete or range of members to delete (dn1-dn2).
4. Repeat until you have removed all the members that you want to remove, then press **Esc**.

Speed Dials

System Speed Dials

The INDeX uses system speed dial for many purposes.

- **Normal External Calls:**

The main use for speed dials is the dialling of external numbers by users. The INDeX still applies ARS to speed dials calls (including call barring). Speed dials prefixed with the **PSTN Access Digit** also invoke forced PIN or forced account on appropriate terminals (*see page 75*).

- **Incoming CLI matching:**

The INDeX can match CLI digits received with incoming calls against stored speed dial numbers. When a match occurs, the speed dial's **name** appears in place of the CLI digits on suitable display terminals (unless a trunk, group or pilot number name is applied to the call).

- **Account Numbers:**

A speed dial can output an account code for recording on the SMDR log. Note that these account numbers are not verified against the INDeX's **Accounts Table**.

- **External Divert:**

DT and TT terminal users can specify a system speed dial as their Divert All number (*refer to the appropriate user guide*).

- **Incoming Call Routing:**

System speed dials can be used within trunk disposition to reroute incoming calls. This allows the routing of incoming calls onto tie lines and network routes.

Creating a System Speed Dial

The INDeX supports 1800 system speed dial stores, numbered 100 to 899 and 9000 to 9999.

To add/change a system speed dial:

1. From the **Main Menu**, select **System**.
2. Select **System speed dial** and enter the speed dial number.
3. If the number is already in use, select **Enter a new speed dial number** to select another speed dial store.
4. Select **name** and enter a speed dial name of up to 16 characters.
5. Select **Sort option** and select how the speed dial's name should appear within the INDeX function (ie. **As entered** or **Last name first**).
6. How you enter the speed dial number depends on whether you require incoming CLI number matching.
 - For the **Dial prefix**, enter any digits that need to be dialled by the INDeX before the external number (eg. the **PSTN Access digit**).
 - For the **Number**, enter the external PSTN number.
 - If the CLI received for the external site includes any prefix that is not part of the **Number** entered above, enter those digits as the **CLI prefix**.
7. If the call is logged and you want an account code to appear with the calls log entry, enter the account code in **Account**.
8. Select the **Tenant/x dir** setting for the speed dial: (see "Multi-Tenancy Services" on page 64)
 - **Tenancy 1-250**
Set by entering a tenancy number. The speed dial only appears in the INDeX function of terminals in that tenancies and cannot be routed over trunks belonging to other tenancies.
 - **X-dir**
Set by entering **0**. Allows the speed dial to be used by any tenancy. However, it does not appear in the INDeX function of any tenancies.
 - **not allocated**
Set by entering no value. Allows the speed dial to be used by any tenancy and to appear in all tenancy INDeX functions.

Chaining Speed Dials

You can chain (join) two speed dials together. This creates speed dials of up to 40 digit. To use the chained speed dial, users should dial the 2nd speed dial number.

To chain two speed dials:

1. Create the first speed dial as normal. This should contain the first 16 digits to be dialled.
2. Create the second speed dial. As its **Dial prefix** enter **S** followed by the first speed dial number.

Guest Services

Introduction to Guest Services

INDeX Guest Services provide a range of functions for hotel and similar applications. The services are achieved through the use of three user type: **Reception**, **Service** and **Guest**.

- **Reception: (DT display terminals)**
 - Reservation, check-in and check-out of rooms.
 - Set guest check-in and check-out dates.
 - Set guest name and language.
 - View and change room cleaned status.
 - Set guest wake-up alarms, do not disturb and other guest functions.
- **Service: (DT display terminals)**
 - Displays the name and language of guest callers.
- **Guest: (Analogue two-wire terminals)**
 - Set wake-up calls.
 - Set Do Not Disturb.
 - Message indication (on terminals with suitable lamps).
 - Entry of cleaner/supervisor room codes.

Details of how to invoke Reception and Guest Room functions are detailed in the Guest Services User Guide.

Reception & Guest Room Groups

The INDeX uses two groups for Guest Services.

- **Reception group:**
Used to contain the user directory numbers of users with their **User type** set to **Reception**.
- **Guest room group:**
Used to contain the user directory numbers of users with their **User type** set to **Guest**.

The INDeX automatically adds and deletes users from the appropriate group when their **User type** is changed.

To set the Reception & Guest Room Group Numbers:

This action should be performed before Guest, Reception and Service extensions are added to the INDeX. If the group numbers are changed at a later stage it may be necessary to manually edit the groups.

1. From the **Main menu**, select **Directory** and then **Set up**.
2. Select **Reserved numbers**.
3. Select **Reception group** and set the group number as required.
4. Select **Guest room group** and set the group number as required.

Setting the User Types

The INDeX uses three **User type** settings to provide the appropriate Guest Service functions to users. The **User types** are:

- **Reception:**
Used for display terminals that need to provide room booking and other functions.
- **Guest:**
Used for analogue extensions in bookable guest rooms.
- **Service:**
Used for display terminals that need to see guest information on calls (name, language, etc) but do not require room booking and other functions.

To change a user's User Type:

1. From the **Main menu** select **Users** and enter the user's directory number.
2. Select **Personal status**.
3. Select **User type** and select the setting required.

Wake-up Alarm Timeouts

Guest services include options for Reception phones and Guest phones to set up wake-up alarm calls. To support that feature the INDeX provides two timeouts.

- **Guest wake-up alarm:**
Sets for how long a guest alarm rings.
- **Guest alarm repeat:**
Sets how long the INDeX should wait before repeating an unanswered alarm. After a third unanswered attempt at an alarm, notification of the unanswered alarm is transferred to the Reception group.

To set the alarm timeouts:

1. From the **Main menu**, select **System** and then **Timeouts**.
2. Select **Guest wake-up alarm** and enter how long an alarm call should ring if unanswered.
3. Select **Guest alarm repeat** and enter how long the INDeX should wait between unanswered alarm calls.

Directory Management

Alpha Tagging

Alpha tagging refers to the presentation of a name (on suitable terminals) when receiving external calls.

The name can come from a number of sources. The name used depends on source with a name set has the highest priority.

The name source option shown below are in priority order (with 1 being the highest priority).

1. **DDI Name.**
2. **Pilot Name.**
3. **Trunk Name.**
4. **CLI Speed Dial match.**
5. **CLI.**

If the calls was routed via a named group, then the name shown can be toggled (by pressing the • symbol shown next to the name) to display the group name.

*On direct internal calls (including network calls to other INDeXs) the name displayed is the user's directory name.

INDeX Feature

The INDeX feature displays an alphabetic directory of system speed dials, user directory numbers, pilot numbers, groups and trunks on suitable terminals (*refer to the appropriate user guides*).

The sort option for each name controls where it appears in the INDeX and how it is displayed.

The INDeX only displays names of users in the same tenancy (*see page 64*). In addition each user has an X-directory setting which allows them to be removed from display in the INDeX function.

System speed dials also have settings for in which tenancy INDeX function they appear (*see page 85*).

To change the sort option:

1. From the **Main Menu**:
 - **User**: Select **Directory** and then **User identity**.
 - **Trunk**: Select **Directory** and then **Trunk identity**.
 - **Pilot Number**: Select **Directory** and then **Pilot numbers**.
 - **Group**: Select **Directory** and then **Group identity**.
 - **System Speed Dial**: Select **System** and the **Speed dial number**.
2. Select **Change sort option**. This option is used for names of two or more words. It indicates which word of the name should be used to sort the name's position within the INDeX function.

To change a user's X-directory setting:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Personal status**.
3. Select **X-directory** to change the status. Change it to **yes** to stop the display of any directory names associated with that terminal from being displayed by the Index feature.

Database Uploads

When uploading a database to the INDeX, you must ensure that it comes from an INDeX running the same software level. Also ensure that you have downloaded a copy of the INDeX's current database (*see page 12*) before uploading a replacement.

To uploading a database from an INDeX with a earlier level of software may require special preparation before that database is downloaded from its source.

To start a database upload:

1. Ensure that the database file to upload is in the Kermit directory and that you have connected to the INDeX via its serial port 1.
2. From the **Main Menu**, select **Database Management**.
3. Select **Database upload**. After the "*Are you sure [y/n]*" prompt wait for a **#N3** response to appear.
4. Press **Ctrl** and **]** simultaneously, then press **C**.
5. At the Kermit prompt, enter **SEND**.
 - Kermit requests the **Local Source File**. Enter the name of the file to upload.
 - Kermit requests the **Remote Destination File**. Enter **DB**.
6. The screen shows the progress of the database file transfer. The PC beeps on completion of the transfer.
7. Enter **FIN** and wait a few seconds until the **MS-Kermit>** prompt appears.
 - If the prompt does not appear, press **↵** several times until "Unable to tell host that session has finished" appears.
8. Enter **C** to reconnect to the INDeX and then press **Esc**.

To replace the current database with the uploaded database:

Note: This process will stop any calls in progress.

1. From the **Main Menu** select **Database Management**. The message ***** Uploaded DB present ***** should be shown.
2. Select **Restart system with uploaded db** to overwrite the current database with the uploaded database (this does not affect the backup database).
3. Log on again. Note that the INDeX serial port speeds and passwords will be those in the uploaded database.
4. From the **Main Menu** select **Database Management**. The message ***** Uploaded DB active ***** should be shown.
 - If operation of the INDeX appears okay, select **Database Backup** to overwrite the backup database.
 - If operation is not satisfactory, select **Delete uploaded db**. To then return the INDeX to its previous database settings, restart the system by powering it down or performing a system reset.

Hot Desking

Introduction to Hot Desking

Hot desking allows a display terminal to be shared by multiple users. Those terminals display **Log on** and **Log off** options*.

Whilst a user is logged on, the terminal takes on their user settings and user directory number. When a user is logged off, calls to their user directory number follow their Divert All number if set, else they follow the user's associated Call Control Plan.

The two aspects of hot desking are:

- Create hot desking user directory numbers
- Set the required terminals to hot desk operation.

***Note:** Take care to distinguish Hot Desking devices from ACD devices that also display **Log on** and **Log off** options.

Creating Hot Desk Users

Hot desk users are in fact normal user directory numbers and have the same options as other users. The only difference is that their user directory number is not permanently associated with a physical terminal device.

To allocate user numbers:

1. From the **Main menu**, select **Directory** and then **Set up**.
2. Select **Allocate user numbers** and enter the directory number required or range of directory numbers required (dn1-dn2).
3. The new user directory numbers can now be named (**Directory** > **User identity**) – (see *"Setting a User's Directory Name" on page 59*).

Setting a Terminal for Hot Desking

To set a terminal to hot desking operation: NB. DT Display Terminals Only

1. From the **Main menu**, select **Terminal** and enter the terminal's current user directory number or its physical address.
2. Select **Port/type** and then select **Hot Desk**.
3. At the terminal check that it now displays a **Log on** or **Log off** option (you may have to refresh the display by going off and then on hook).

Report & Log Printing

Introduction

The INDeX outputs two types of information through its serial ports; reports which contain data collected and stored over a period of time, logs which contain data output as it occurs. These outputs can be directed to a printer, a display or other equipment.

WARNING

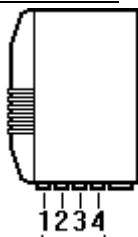
Do not stop any log output without first checking that the log it is not required by any attached peripheral equipment.

Sending Logs/Reports to the Programming Port:

You can direct any log or report to the port from which you are programming. If you do this with a report, press ↵ to return to programming. If you do this with a log, the INDeX automatically logs you off. To stop the log, press **Esc** or log on from another port and use the **stop log** command.

Connecting a Printer/Display Device

Serial Ports:



Serial Ports

To use a printer for report or log printing from the INDeX, you must configure it as follows (*refer to the printer manufacturer's information*).

Printer Devices:

- 80 columns x 24 lines minimum
- RS232C serial interface
- Transmission at 300, 600, 1200, 2400, 4800, 9600, 19200 or 38400 baud
- 8-bit, no parity, two stop bits.

Display Devices:

- VT100 compatible
- A baud rate matching one of the INDeX serial port settings (300, 600, 1200, 2400, 4800, 9600, 19200, 38400)
- ANSI standard cursor control sequences.
- 8 bit, no parity, two stop bits.

To connect the printer or display device:

1. Connect the printer to a free INDeX serial port using a suitable serial cable.
Avoid using port 1, leave that port free for database and software uploads and downloads.
 - Ensure that the printer is loaded with sufficient paper, switched on and on-line.
2. From the **Main Menu**, select **System**.
3. Select **Ports** and use **Tab** to select the port to which the device is connected.
4. Select a baud rate for the port that matches the printer or display device.

Printing a Statistics Report

The INDeX records the number, length and time of calls and stores this data for later retrieval. You can select statistics reports for the whole INDeX or for individual devices (*see page **Error! Bookmark not defined.***).

To set the statistics parameters:

1. From **Main Menu**, select **Report** and then **Set up statistics parameters**.
2. Select **busy period** and enter the start and end times of the period (default 10:00 to 12:00) for which the report should show separate statistics.
3. Select **minimum call time** and enter the shortest length of call for which the INDeX should record statistics (default 15 seconds).
4. Select **long call time** and enter a value in seconds (default 180 seconds).
The statistics report separates calls longer and shorter than this duration.

To print a statistics report:

1. From the **Main Menu**, select **Report** and then **Report statistics**.
2. Press **Tab** to select the port on which to output the report.
3. For all the stored statistics, select **statistics totals**.
4. For individual device statistics select **device statistics** and enter the device directory number (or **All** for all devices).
5. For call charges (where the line provider provides compatible call charge signalling), select **call charges** and enter the device directory number or **All**.

To clear the stored statistics:

1. From **Main Menu**, select **Report** and then **Set up statistics parameters**.
2. Select **clear totals**.

To alter an ARS Route List's call type: *This does not alter call routing.*

1. From the **Main Menu**, select **Automatic Route Selection**.
2. Select **Route Lists** and enter the route list number.
3. Select **Change the call type** and change it to **International**, **National**, **Local** or **Unclassified** as required.

Printing a Fault Report/Log

See the INDeX Installation & Maintenance Manual.

Running an SMDR Call Log

Call Logging Equipment:

As well as directing the call log to a printer, you can send it to an intelligent call log peripheral. This processes the data into a series of reports.

Lost Data:

The INDeX buffers the call log but only for a short period, e.g. for paper loading. To avoid lost call data, the printer (or other logging device) must be permanently connected.

The SMDR call log is a continuous log giving external call details immediately after call termination. For the INDeX to log a call it must match several criteria. You can set separate SMDR criteria for each port.

- Both the user and the call control plan involved in the call must be set for inclusion on the Smdr call log.
- The call direction (in or out) must match the SMDR parameters of the port and exceed the minimum call time.
- For outgoing calls, the call type of the route list must be included in the SMDR parameters.

To start the SMDR call log:

1. From the **Main Menu**, select **Report** and then **Start/stop Smdr, fault and event logging**.
2. Use **Tab** to select the port on which to output the log.
3. Select **start SMDR** (or **start Smdr and Event log**).

To stop the SMDR call log:

This stops any logs on the same port.

1. From the **Main Menu**, select **Report** and then **Start/stop Smdr, fault and event logging**.
2. Use **Tab** to select the port on which the log is going.
3. Select **stop log**.

To change the SMDR parameters:

1. From the **Main Menu**, select **Report**.
2. Select **Set up Smdr parameters** and enter the port for which you want to set parameters.
3. Alter the settings to show the calls you want logged.

To allow a user to be included on the call log:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Personal status**.
3. Select **Include on Smdr** and set this to **yes**.

To allow the trunks associated with a call control plan on the call log:

1. From the **Main Menu**, select **Call control plan** and enter the plan's number.
2. Select **Include on Smdr** and set this to **yes**.

To alter an ARS Route List's call type:

Note: This does not alter the actual call routing.

1. From the **Main Menu**, select **Automatic Route Selection**.
2. Select **Route Lists** and enter the route list number.
3. Select **Change the call type** and change it to **International**, **National**, **Local** or **Unclassified** as required.

Running an Event Log

The Event log outputs activity and status details of extensions and trunks. This is a real time output intended for peripheral devices connected to a port (ie. it is not intended as a human readable report). The INDeX can only output the event log to one port at a time. It can output the event log and SMDR call log simultaneously to the same port if required by a peripheral device (eg. ACD Manager).

All trunk details are output on the event log, but terminals are selected on an individual basis.

To include a user on the event log:

1. From the **Main Menu**, select **Users** and enter the user's directory number.
2. Select **Personal status**.
3. Select **Include on Event Log** and set this to **yes**.

To start the event log:

1. From the **Main Menu**, select **Report** and then **Start/stop Smdr, fault and event logging**.
2. Use **Tab** to select the port on which to output the log.
3. Select **start Event log** or **start Smdr and Event log**.

To stop the event log: *This stops all logs outputting on that port.*

1. From the **Main Menu**, select **Report** and then **Start/stop Smdr, fault and event logging**.
2. Use **Tab** to select the port on which the log is running.
3. Select **stop log**.

Printing the Directory

A listing of all the INDeX directory numbers can be output to a printer or screen. This will show each directory number with its directory name, address (if appropriate) and type.

To print the directory:

1. From the **Main Menu**, select **Report** and then **List the directory**.
2. Use **Tab** to select the port on which the report should be output.
3. Select the report required.

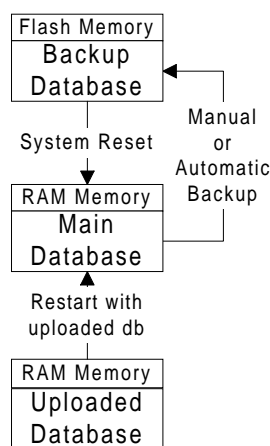
Database Management

General

The INDeX provides several tools for copying and moving the database. You can use these for storing copies of INDeX details and for remote INDeX setup and programming.

The INDeX stores the backup database in Flash memory. This is memory that can be overwritten but is not lost if power to the INDeX is switched off.

When switched on (and at INDeX resets), the INDeX copies the backup database from Flash memory into RAM memory. The database in RAM memory is the one that controls the INDeX and is altered by any programming changes. At regular intervals, the INDeX copies the RAM memory database and any changes to it into the Flash memory.



Database Backups

The process of database backup (manual or automatic) does not interfere with calls on the INDeX. You should perform a database backup after any programming on the INDeX.

To change the automatic backup time:

1. From the **Main Menu**, select **Database Management**.
2. Select **Set backup time** and enter the number of minutes past the hour at which automatic backups should take place.
 - **Note:** Just pressing ↵ switches automatic backup off. This is for test purposes only and must never be done on an end customer INDeX.

To manually backup the main database:

1. From the **Main Menu**, select **Database Management**.
2. Select **Database Backup**.
3. The **Flash Database status** changes to **Backing up** for approximately a minute.

To erase the backup database:

1. From the **Main Menu**, select **Database Management**.
2. Select **Erase database**.

Linecard Management

Viewing Cassettes & Cassette Channels

The Linecard information menu shows information about all the cassettes in the INDeX, their types and their current status.

To view cassettes:

1. From the **Main Menu**, select **Linecard Information**.
2. The screen displays details of the cassette in each cabinet slot and each cassette's status:
 - **Running** = Cassette in slot and working.
 - **Shutdown** = Cassette in slot but shutdown (off-line). All devices on that cassette return number unobtainable.
 - **Not available** = Slot not useable due to type of Link Cassette in INDeX.
 - **Locked** = Original cassette has been removed and a different type inserted.
 - **Not present** = The cassette has been removed.
3. Select **Linecard details** to display details of the first cassette.
4. To select another cassette, either press **Tab** for the next slot or select **Select card** and enter the cassette address.
5. The screen displays the cassette type (configuration) and software level plus a description.
 - To change the description, select **Enter description** and enter a name of up to 30 characters.
6. To view the individual details of channels on the cassette, select **Channel details**. The screen displays the channel type, address, directory number and identification of each allocated channel. Press **Tab** to display the channels of the next cassette.

Inserting Cassettes

A new cassette can be inserted into any unused free slot provided it does not conflict with any of the conditions below. If the slot has been previously used for another type of cassette, that cassette will need to be de-allocated (refer to the INDeX Installation & Maintenance Manual).

The INDeX automatically allocates trunk or terminal directory numbers for all the cassette circuits (except PRI circuits - see *page 18*).

Slot/Cabinet Limitations:

- CPU 100 only supports use of slot 1, 2, 3 and 8 in one cabinet.
- CPU 100/200 INDeXs do not support additional cabinets.
- CPU 400 INDeXs only support 1 expansion cabinets.
- CPU 800 INDeXs support up to 3 expansion cabinets.
- CPU 1000 INDeXs support up to 4 expansion cabinets.
- Cabinets with a PSU 4 fitted can only use slots 1, 2, 3 and 8 (slot 8 being reserved for an Expansion Link Cassette (ELC) or CPU Cassette).

The top line of the log in screen indicates the type of CPU Cassette installed in the INDeX. This screen also displays the remaining capacity of INDeX ports, directory numbers and group cells (members).

Cassette Setup

To setup a cassette:

1. From the **Main Menu**, select **Linecard information** and then **Linecard details**.
2. The screen displays the first cassette. To select another cassette, either press **Tab** for the next slot or select **Select card** and enter the cassette address.
3. Select **Linecard setup**. The screen displays the setup options for that type of cassette.

Locking Slot Usage

Locking a cassette slot stops it being used for any other type and capacity of cassette than that already present. If a different cassette is inserted, it is not recognised and the cassette's red LED flashes. When a cassette is inserted into an unused slot, the slot is automatically locked after channel allocation.

To lock/unlock the cassette type:

1. From the **Main Menu**, select **Linecard information** and then **Linecard details**.
2. The screen displays the first cassette. To select another cassette, either press **Tab** for the next slot or select **Select card** and enter the cassette address.
3. Select **Toggle lock status** to lock or unlock the cassette.

On & Off-Lining Devices

As well as shutting down cassettes, you can off-line individual devices within cassettes. Whilst off-line the device returns number unobtainable to calls.

You can also de-allocate individual devices. This remove the devices directory numbers and settings from the database. If de-allocating a cassette circuit, to reallocate the device the cassette must be shutdown, unlocked and then reinserted.

To on line or off line a device:

1. From the **Main Menu**, select **Maintenance**.
2. Select either **Online device** or **Offline device** and enter the device address or directory number.

To de-allocate a device:

1. From the **Main Menu**, select **Maintenance**.
2. Select **De-allocate device** and enter the device's address or directory number.

Resetting Devices

To reset a device:

1. From the **Main Menu**, select **Maintenance**.
2. Select **Reset device** and enter the device's address or directory number.

Mimicking Cassettes & Cards

The INDeX allows you to install non-existent cards and cassettes. You can use these to program up the database in advance of full equipment installation or for download and upload to another INDeX.

To install a linecard:

1. From the **Main Menu**, select **Maintenance**.
2. Select **Install Line Card**.
3. Enter the slot into which you want to install a non-existent line card.
4. Select the card type and enter the number of channels.

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