2. Set this variable to "`n`" if your entry is located directly beneath the country level (such as `@c=XX@cn=Directory Manager`). Otherwise, if you don't have the `username` variable defined, IDM would force you to enter an organisation name.

3. If you have attributes which require object classes not defined by IDM (as described in `prrOC`, `rlOC` and `rmOC`), you may use these variable to define them. The object classes defined here take effect only when entries are added, and will not be included during a modify operation.

4. It is almost certain you will need to move to a different position in the directory.

5. You may need to specify values for attributes like `roleOccupant`s which are in a different part of the tree.

1. This value will be shown as the default at the country prompt. Together with the next two variables, it will help users to enter only a $< CR >$ at the corresponding prompts.

2. This value will be shown as the default organisation name.

3. This value will be the default department name.

4. It is known there are departments in this organisation.

5. Set this variable to "y" only if you want users to be able to enter specify entries from say, other departments, as `secretary` or `roleOccupant`.

6. Do not search for the `Directory Manager` entry, as this tailor file is meant for all users in the organisation.

7. If the users will access the service remotely through telnet, set this variable to `on`, otherwise to `off`.

4.4.4 A DSA Manager

If the user is in charge of maintaining the directory at the DSA level, it is convenient to define the following variables:

```
username:@c=GB@o=Zydeco Goodtimes Ltd@cn=Directory Manager
password:secret
posdit:@c=GB@o=Zydeco Goodtimes Ltd [1]
org_compel:n [2]
prrOC: [3]
rlOC:
rmOC:
change_posdit:y [4]
change_posdn:y [5]
```

Apart from having the `username` and `password` variables defined,

1. Define the `posdit` variable if you have a position in the directory which is used most of the times. If the position in the directory changes every time you use the service, don't define it, but in this latter case, it may be convenient to define the variables `default_country`, `default_org` and `default_dept`.

4.4.2 An Individual User, in an Organisation without Departments

```
username:@c=GB@o=Zydeco Goodtimes Ltd@cn=Peter Williams [1]
password:secret [2]
posdit:@c=GB@o=Zydeco Goodtimes Ltd [3]
dept:n [4]
change_posdit:n [5]
change_posdn:n [6]
```

1. Specify the username to avoid the prompts for country, organisation and name every time you use the service.

2. Specify the directory password for the username specified above. The combination of 1 and 2 will provide completely transparent authentication.

3. Specify the position in the directory. It is usually the same as the `username`, except for the name of the person.

4. If the organisation has no departments, set it to "`n`".

5. There is no use in changing to another position in the directory.

6. Set it to "`n`", unless you are working for an international organisation.

4.4.3 A Common Tailor File in an Organisation with Departments

```
default_country:GB [1]
default_org:University College London [2]
default_dept:Computer Science [3]
dept:y [4]
change_posdn:y [5]
search_mgr:n [6]
wanAccess:on [7]
```

This tailor file would suit a department. Many persons would be using this tailor file, therefore, no specific `username` can be specified, but each one will have to enter his/her name and password.

```
mapattname:favouriteDrink Favourite drink
mapattname:roomNumber Room number
mapattname:postalAddress Postal address
mapattname:description Description

country:AU Australia
country:AT Austria
country:BE Belgium
country:BR Brazil
country:CA Canada
country:CH Switzerland
country:DE Germany
country:DK Denmark
country:ES Spain
country:FI Finland
country:FR France
country:GB United Kingdom
country:GR Greece
country:IE Ireland
country:IS Iceland
country:IN India
country:IL Israel
country:IT Italy
country:NL The Netherlands
country:NO Norway
country:NZ New Zealand
country:PL Poland
country:PT Portugal
country:SE Sweden
country:US United States
```

What exactly is needed in the tailor file is very much dependent on particular needs. Below, there are some examples, on a small set of variables in the tailor file, on how they can be configured, according to some more particular needs.

```
org_compel:
remoteAlarmTime:45
localAlarmTime:30
inverseVideo:off
commonatt:telephoneNumber
commonatt:objectClass
commonatt:facsimileTelephoneNumber
addorg:y
init_user:@c=GB@o=University College London@cn=Directory Manager
init_pswd:password
search_mgr:n
addorg_posdit:@c=hidden@o=Paradise@ou=New organisations
masterDSA:cn=Ocellated Turkey
orgatt:description
orgatt:telexNumber
orgatt:postalAddress
orgatt:businessCategory
ouatt:telexNumber
ouatt:postalAddress
ouatt:description
prratt:rfc822Mailbox
prratt:mhsORAddresses
prratt:roomNumber
prratt:favouriteDrink
prratt:personalTitle
rlatt:telephoneNumber
rlatt:roleOccupant
rmatt:roomNumber

rmatt:telephoneNumber
rmatt:description
mapattname:facsimileTelephoneNumber Fax
mapattname:rfc822Mailbox Electronic mail
mapattname:businessCategory Business category
mapattname:mhsORAddresses X.400 address
mapattname:telephoneNumber Telephone number
mapattname:personalTitle Personal title
```

4.3.7 Miscellaneous

`inverseVideo:` Set this variable to off. This variable is originally defined for DE usage.

```
inverseVideo:off
```

`remoteAlarmTime:` A remote search is one where the country and organisation name searched for, ar not the same as the defaults. If the search has not completed within a configurable number of seconds, a message is displayed warning the user that all may not be well. The search continues until it returns or is interrupted by the user. It is advisable to set this timer to a higher limit than DE.

```
remoteAlarmTime:45
```

`localAlarmTime:` As for `remoteAlarmTime`, except for local entries.

```
localAlarmTime:30
```

`wanAccess:` This enables the feature where a user is asked to confirm that the size of their terminal is really greater than 24 lines. This helps with telnet access if the screen size is not propagated.

```
wanAccess:on
```

4.4 Example Tailor Files

4.4.1 A Full Example of a Tailor File

This tailor file is similar to the public access service operated by PARADISE.

```
dsa_address:TELEX+00728722+RFC-1006+03+128.86.8.56+17003
change_posdit:y
change_posdn:y
yes:y
no:n
wanAccess:on
```

`rmatt:` These attributes are managed if an entry for a room is updated.

```
rmatt:roomNumber
```

`rmOC:` Similar to `prrOC` and `rlOC` but for rooms. The object classes defined for a room are `quipuobject`, `room` and optionally mhsUser. (Refer to `prrOC` above).

`mapattname:` This allow for a user friendly attribute name to be displayed to the user.

```
mapattname:facsimileTelephoneNumber fax
```

`mapphone:` This allows for the mapping of international format phone numbers into a local format. It is thus possible to display local phone numbers as extension numbers only and phone numbers in the same country correctly prefixed and without the country code.

```
mapphone:+44 71 380-:
mapphone:+44 71 380-7050 x:
mapphone:+44 0
```

`greybook:` In the UK, big-endian domains are used in mail names. By setting this variable on, it is possible to display e-mail addresses in this order rather than the default little-endian order.

```
greybook:on
```

`country:` This allows for the mapping of the 2 letter ISO country codes (such as AU and FR) onto locally meaningful strings such as, Great Britain and France.

```
country:AU Australia
country:FR France
```

`commonatt:` These attributes are displayed whatever type of object is being managed, be it an organisation, a department, a person, a role or a room. The current version of IDM requires `objectClass` to be included in the list of `commonatt` attributes.

```
commonatt:objectClass
     commonatt:telephoneNumber
```

`orgatt:` These attributes are managed if an entry for an organisation is updated.

```
orgatt:telexNumber
```

`ouatt:` These attributes are managed if an entry for a department is updated.

```
ouatt:facsimileTelephoneNumber
```

`prratt:` These attributes are managed if an entry for a person is updated. Please note that this variable has the same name as in DE, but in the case of IDM, it does not affect roles or rooms.

```
prratt:favouriteDrink
```

`prrOC:` If there are attributes for persons, which require a special object class, they can be specified here. If more than one object class is required, separate them with ampersands ("`\&`"). At present the following object classes are added to all persons: `person`, `quipuObject`, `newPilotPerson` and `organizationalPerson`. If the tailor file defines the `mhsORAddresses`, and a value entered for the entry, then `mhsUser` is also included. This variable is only taken into account when a new entry is added.

`rlatt:` These attributes are managed if an entry for a role is updated.

```
rlatt:roleOccupant
```

`rlOC:` If the roles to be added, require object classes, other than `quipuobject`, `organizationalRole` and optionally `mhsUser`, enter the name of the object classes here. (Refer to `prrOC` above).

`addorg_posdit:` This variable defines the position in the directory where new organisations are to be added. In this position add the country or countries for which you accept to register organisations. Adding these countries is a manual process, to allow the provider of this service to exert full control. If a user tries to add an organisation to a country which is not listed under this position, IDM will inform the user, that it is not possible to add organisations for that particular country.

`masterDSA:` This variable defines the DSA which will be the master for all the entries beneath the organisation.

```
masterDSA:cn=Red Squirrel
```

4.3.5 Default Country, Organisation and Department

`default_country:` This variable sets a default country, for prompts relating to the country. If a new value is entered, at run time, this will become the new default value.

```
default_country:GB
```

`default_org:` This variable sets a default organisation, for prompts relating to an organisation. If a new value is entered, at run time, this will become the new default value.

```
default_org:University College London
```

`default_dept:` This variable sets a default department, for prompts relation to a department. If a new value is entered, at run time, this will become the new default value.

4.3.6 Attribute Tailoring

The following configuration options concern the attributes that will be managed by IDM.

department name, without checking first whether the organisation has departments or not. This variable takes effect at time of authentication, when the user changes directory position, and when the user enters a value for an attribute which is a distinguished name.

```
dept:n
```

`search_mgr`: By default, IDM searches for the entry "Directory Manager" before asking for the name of the user. This is meant for directory managers in small-to-medium enterprises. To suppress searching for this entry, set this variable to "`n`".

```
search_mgr:n
```

`addorg`: Set this variable to "`y`" to allow users to add organisations in the directory. When the organisation entered by the user is not found, it allows the user to add the organisation to the directory. The variables associated with this facility are described below.

4.3.4 Adding Organisations (Public Access)

Please note that the values defined for the variables `search_mgr`, `change_posdn` and `change_posdit` are overridden when dealing with new organisations.

`addorg`: Set to "`y`" as described above.

```
addorg:y
```

`init_user`: This variable defines the username with which IDM will bind to the directory, to add organisations. This username must have write access to the position in the directory where the new organisations are to be added.

```
init_user:@c=GB@o=University College@cn=Directory Manager
```

`init_pswd`: This variable defines the password for the username specified in the `init_user` variable.

```
init_pswd:yourpswd
```

4.3.3 Behaviour

There are several variables which allow you to obtain different behaviour from IDM.

`change_posdit:` This variable allows you to define whether you allow users to move from one position in the directory to another. If users have limited knowledge about the directory, it is advisable to set this variable to "n". More advanced users may want to set this to "y". IDM sets it to "y" if the organisation has departments. A value of "n" suppresses the `View/Change directory position` option in the `Maintain organisation entries` menu.

```
change_posdit:y
```

`change_posdn:` This variable allows the user to specify values for attributes which are distinguished names, to refer to other portions of the directory. This is relevant for attributes such as `roleOccupant` or `secretary`. If this is set to "n", it expects to find the entries in the current position of the directory.

```
change_posdn:n
```

`org_compel:` When this variable is set to "n" the user is not forced to enter an organisation, at the authentication stage, when specifying a distinguished name value and in the `Change Directory Position` option. When a person is specified beneath the country level, the user must enter an exact match.

```
org_compel:n
```

`dept:` Once the user identifies an organisation, the default behaviour for IDM is to search for departments beneath it. If departments are not found, it continues with the next prompt. If departments are found, IDM prompts the user for the department name.

It is possible to change this behaviour. If `dept` is set to "`n`", IDM will not search for departments, nor will be the user be prompted for the department name. If `dept` is set to "`y`", IDM will prompt for the

Please note the initial dot (".") for the file in the HOME directory, whereas the one in the ISODE *ETCDIR/dm/* directory does not have a dot.

If none of the tailor files are found, IDM terminates

Inside the tailor file, lines starting with a "`#`" are treated as comments.

4.3.1 DSA to Contact and Access Mode

`dsa_address:` Specifies the address for the DSA.

```
dsa_address:Internet=128.86.8.55+17003|IXI=20433450400255
```

`wanAccess:` This enables the feature where a user is asked to confirm that the size of their terminal is really greater than 24 lines. This helps with telnet access, where the screen size may not be propagated correctly.

```
wanAccess:on
```

4.3.2 Username, Password and Position

If the user wants to have a private tailor file, it is convenient to define these variables, to skip the interactive authentication dialogue.

`username:` Specifies the distinguished name of the user.

```
username:@c=BE@o=SYSTEC@cn=Christopher Duxbury
```

`password:` Specifies the user's password.

```
password:secret
```

`posdit:` Specifies the position in the directory. It is convenient to define this variable, specially if you define the username, otherwise, at start-up time, you will be asked to specify it. Do not specify it, only if you really want to switch from one position to another between one session to another.

```
posdit:@c=GB@o=Zydeco Goodtimes Ltd
```

The only slight difference the user perceives when the new organisation has been added to this special area, is that the default option for the `Maintain organisation entries` menu is set to

```
3  Add a new entry
```

instead of the usual

```
1  List all entries
```

The following restrictions apply for organisations stored in this special area:

- The option `View/Change Directory position` is disabled.
- Attributes whose values are distinguished names (DN), such as `roleOccupant`, can only point to entries which are in the same organisation. This is irrespective of the value of the variable `change_posdn`. Furthermore, when the entry is added or displayed, the full position in the tree is not revealed, and only the last part of the DN printed.
- The search for the `Directory Manager` will be performed, even if the `search_mgr` variable is set to "`n`".

These restrictions have the intention of hiding from the user the position where the entries are stored.

4.3 Tailor File

It is of utmost importance to get the tailor file properly configured to get the desired behaviour out of IDM. In general IDM follows the same line as DE, but a number of other options and differences exist.

The most important difference, is that a user may have in his/her HOME directory, a tailor file, thus, IDM can be tailored according to individual needs/preferences. *The name of the tailor file in the HOME directory must be .dmtailor.*

If no *.dmtailor* file exists in the HOME directory, IDM will attempt to read the file *dmtailor* in the ISODE directory *ETCDIR/dm/*.

country manager. National pilots wishing to provide a similar service may do so with IDM.

The configuration variables are described in Section 4.3, but the following paragraphs try to describe how this facility operates.

In order to allow the user to add organisations, set the variable `addorg` to "`y`".

Being a public access service, the variables `username` and `password` must not be set. A couple of new variables need to be defined, `init_user` and `init_pswd`, with the purpose of binding initially to the directory. They must define a valid username and password combination with write access to the position in the directory where these organisations are to be entered.

The position in the directory where new organisations are added must be specified with the variable `addorg_posdit`. This position should be different from say the country level, because anyone can access this service, therefore it is not possible to be certain that the information provided by the user of the service is valid.

There is finally another variable which must be specified in the tailor file: `masterDSA`. This is the name of the DSA which will master the entries for the organisation.

After entering the country, the user will enter the organisation name, if it is not found, IDM will search under the position specified by the variable `addorg_posdit`, for the country specified, and under the country, for the organisation, to ensure that the organisation has not been recently added.

The country entries under `addorg_posdit` must be entered manually by some other means (DISH?). This is with the intention of providing the national manager full control over the organisations registering. If the country is not found, IDM simply notifies the user that it is unable to add organisations in that country.

Once the organisation has been added, IDM prompts for the password and adds the entry `Directory manager`, with the password which has just been entered. The definition of the new organisation contains an `acl`, and an inherited `acl`, which grants the `Directory manager` access rights to the organisation, and the entries beneath it.

If the user connects again to the service, and the organisation is found in the `addorg_posdit` portion of the tree, (s)he will be prompted for the password of the `Directory manager` entry, even if the `search_mgr` variable of the configuration file is set to "`n`".

Help

Independently of the help option in the initial menu, help is available at each prompt by typing a "?" sign. [There exists a file for each prompt/attribute. Directory managers who may wish to include attributes for which no help file exist, may add their own help files in the ISODE directory *ETCDIR/dm/etc*. Help files in this directory start with `dm` followed by the name of the attribute, for example, `dmfavouriteDrink` for the `favouriteDrink` attribute.]

Quit

At all prompts (except the "`y/n`" ones), the user may enter a "`q`" to quit the current operation. As mentioned above, during the authentication operation, typing "`q`" will ask the user to confirm quitting from the service. Typing "`q`" at the initial menu, will terminate the session.

Defaults

Prompts for user input may display some values between square brackets (`[]`), these are called default values. To accept this value simply type $< CR >$.

In the add and modify options, the previous value (if any) is shown as default, to delete it, press "-".

4.2 Adding Organisations (Public Access)

This section describes how IDM can be tailored to add new organisations in the Directory for IDM installations for public access. Please note that this section is not intended for the novice user, but for Directory managers providing a(n) (inter)national service. Please also note that due to the security required (not defined in the X.500 1988 standard), this part of the software is likely to work only in QUIPU specific implementations. Once the X.500 1992 standard is implemented in the majority of the DSAs, IDM must be changed to conform with the standard.

PARADISE offers a service by which a new organisation can join the directory through the public access interface. The information is stored in a special position in the directory, and then transferred to the corresponding

```
                              +44 71-380-7280
        Electronic mail       S.Ferguson@cs.ucl.ac.uk
        Room number           G09
        Personal title        Mr

    Are you sure you want to delete this entry  (y/n) [n]
```

Type "y" to delete the entry, or "n" to leave the entry untouched.

View/Change Directory Position

This option is not available in all configurations. [It is available if the tailor file has the variable `change_posdit` set to "y", or if the organisation where the user is registered has departments.]

When the user selects this option, the current directory position is displayed, and the user is prompted to select whether to change the position or not, for example,

```
    You are managing the Directory at: Computer Science
                                       University College London
                                       GB
```

The user may then choose to change the position, and will be prompted for the country, organisation and department. Typing "q" at the country or organisation prompt results in the user remaining in the same position as before. [This behaviour is affected by the `dept` and `org_compel` variables.]

4.1.5 Miscellaneous

Control-C and Control-D Handling

If the user types `Control-C`, IDM will go back to the initial menu. If `Control-C` is typed at the initial menu, IDM will terminate[3].

The same behaviour is followed when `Control-D` is typed. This is to terminate the session, if the communication line is broken.

[3]The only exception to this is when the user is expected to type the password.

```
Enter name of entry to modify,
q to quit to previous menu: Linda

      Linda Millington
        1  Telephone number   +44-71-405-8400 x 432
        2  Fax                +44 71 242 1845
        3  Electronic mail    L.Millington@noc.ulcc.ac.uk
        4  Favourite drink    Strong black coffee
                              Red wine
                              Blackcurrant tea
        5  Room number        LG08
```

When a single entry has been found, the existing values are displayed, with a number at their left for quick identification. To modify one of the attributes displayed, the user must enter the number associated with it. The attribute will be displayed with its existing value as a default.

If the user types "new", IDM offers a list of additional attributes,

To enter an alternative value for an attribute[2], select the attribute, type $< CR >$ to leave the current value intact, and at the prompt for an optional alternative value, enter the new value. For example:

```
Electronic mail [L.Millington@noc.ulcc.ac.uk]:
Optional alternative Electronic mail:  linda@uk.ac.ulcc.paradise
```

Delete an Existing Entry

This option will permanently delete an entry from the directory.

First enter the name of the entry to delete. When a single entry has been found, the information on the entry is displayed and a confirmation to delete the entry requested. For example,

```
Enter name of entry to delete,
q to quit to previous menu: Stewart Ferguson

      Stewart Ferguson
        Telephone number      +44 71-380-7289
```

[2]multi-valued attribute in X.500 terms

search of the entry David Goodman. Had the search failed to find a matching entry, the user would had been notified, and if more than one entry had been found, the list of matching entries would be displayed to allow the user to select the correct one, as in:

```
Enter Role occupant :  Goo*

Got the following approximate matches.  Please select one
from the list by typing the number corresponding to the
entry you want.

 1 David Goodman     +44 81 450 3399       D.Goodman@cs.ucl.ac.uk
 2 Suran Goonatilake +44 71-387-7050 x3719 S.Goonatilake@cs.ucl.ac.uk
```

As can be seen in the example above, there is another prompt before the actual name of the role occupant is entered, to confirm the position.

```
                                Computer Science
                                University College London
                                GB

Is the Role occupant in position above (y/n) [y]
```

Typing a "n" in this case would allow the user to specify a new country, organisation and department for the role occupant. [Setting the value of `change_posdn` to "n" would prevent this prompt te be displayed. This variable must then be set to "n" for users who only refer to entries within their organisation, and to "y" for organisations with positions filled with persons located in any other position in the directory. Specifying another position for these attributes does not affect the user's position in the directory.]

Add a Room

Adding a room follows similar steps as the "Add a person" and "Add a role" option.

[The attributes defined in the tailor file with the variable `rmatt` are the ones used for rooms.]

Modify an Existing Entry

This option allows the user to change an existing value, delete an existing value or add a new value to an entry. *IDM does not allow you to change the name of an entry.*

The user must select first the entry to be modified.

```
                                - Gower Street
                                - London WC1E 6BT
                                - England
```

Typing "y" at the confirmation prompt, will add the entry. Typing "n" will display one attribute at a time, with the previous value entered (if any) as a default.

Add a Role

The system prompts for the role name, and checks whether a similar name already exists.

If the "role occupant" attribute is defined as of interest in the tailor file [(`rlatt:roleOccupant`)], then it will prompt for a role occupant. This is a special attribute, which requires that the entry for the role occupant to be already in the directory. For example,

```
Enter role name, q to quit adding a role: Paradise Project Manager
Checking that entry is not already in... please wait
Enter Telephone number: +44 71 387 7050 ext. 3695
Enter Fax: +44 71 387 1397
Enter Description:
                                    Computer Science
                                    University College London
                                    GB

Is the Role occupant in the department listed above (y/n) [y]
Enter Role occupant :  Goodman

NAME OF ENTRY           - Paradise Project Manager
Telephone number        - +44 71 387 7050 ext. 3695
Fax                     - +44 71 387 1397
Description             -
Role occupant           - David Goodman
                          Computer Science
                          University College London
                          GB
```

In the example above, the entry for David Goodman already existed in the directory. Typing `Goodman` as the role occupant resulted in a successful

```
Checking that entry is not already in... please wait
Enter full name  [Joe Bloggs]:  Joe Fred Bloggs
```

It displays the first name and the surname as a default for the full name. For example you may wish to enter here the name including the middle name.

Please note that the name by which the entry will be stored in the directory is the combination of the first name and the surname, and that no other entry can have this unique name. Also note that *the name is a field which you must enter, but can not change later, therefore please be specially careful when entering the name.*

Enter then the values for the different attributes.

Special mention should be made of the address, which is composed of six lines, each up to a maximum length of thirty characters. Enter one line at a time and press $< CR >$ after each line. For example,

```
Enter Postal address: (6 lines)
line 1:  Department of Computer Science
line 2:  University College London
line 3:  Gower Street
line 4:  London WC1E 6BT
line 5:  England
line 6:
```

The user doesn't need to enter a value for each attribute, except, as mentioned above, for the name. Once the values have been entered, they are displayed and a prompt to confirm that the values are correct is displayed,

```
NAME OF ENTRY           - Joe Bloggs
Full name               - Joe Fred Bloggs
Telephone number        - +44 71 387 7050 ext. 3683
Fax                     - +44 71 387 1397
Electronic mail         - J.Bloggs@cs.ucl.ac.uk
Room number             - G10
Favourite drink         - Mineral water
Personal title          - Mr.
Postal address          - Department of Computer Science
                        - University College London
```

```
4  Paul Barker    +44 71-380-7366        P.Barker@cs.ucl.ac.uk
5  Steven Barrett                        S.Barrett@cs.ucl.ac.uk
```

If several entries match the name, a brief listing is displayed. For more detailed information on a specific entry from the list displayed, the user can choose the number of the entry.

```
Enter name of entry, * to list entries,
q to quit to previous menu: 4

      Paul Barker
        Telephone number      +44 71-380-7366
        Electronic mail       P.Barker@cs.ucl.ac.uk
        Favourite drink       Guinness
                              16 year old lagavulin
        Room number           G21
        Personal title        Mr
```

Add an Entry

This option allows the user to add persons, roles or rooms. The user is presented with the following menu:

```
The following options are available
            1  Add a person
            2  Add a role
            3  Add a room
Enter number or q to quit to previous menu  [1  Add a person]:
```

Add a Person

The add a person operation, prompts for the surname of the person and then for the person's first name. It then concatenates the first name and the surname and tries to find a person with that name.

```
Enter q to quit from this option at any time

Enter surname, q to quit adding a person:  Bloggs
Enter first name:  Joe
```

Help Overview

This option displays a screen describing how to obtain specific help at each prompt, how to quit, how to accept default values and the action taken when `Control-C` is typed.

4.1.4 Maintain Organisation Entries

When the user chooses this option IDM displays another menu.

```
The following options are available
     1  List all entries
     2  Read an entry
     3  Add a new entry
     4  Modify an existing entry
     5  Delete an existing entry
     6  View/Change directory position
Enter number or q to quit  [1  List all entries]:
```

List All Entries

This option lists all the persons, roles or rooms found under the current position of the directory. It will pause for every screen-full of text. Typing "`q`" at the pager prompt, or $< CR >$ at the end of the listing will bring back the menu. Kindly note that this is not an abbreviated listing (like in DE), but a full listing of all attributes of interest for each entry. If the user is interested in having a smaller set of attributes for all entries, (s)he may choose the Read an entry option, and type an asterisk as the entry's name.

Read an Entry

This option allows the user to select the entry or entries to be displayed. It is possible to type strings with asterisks, like in the example below:

```
Enter name of entry, * to list entries,
q to quit to  previous menu: Bar*
  1  Barbara Segal  +44 71-380-7212        B.Segal@cs.ucl.ac.uk
  2  Joanne Barnett                        J.Barnett@cs.ucl.ac.uk
  3  John Baree     +44 71-387-7050 x3668  J.Baree@cs.ucl.ac.uk
```

[In this case, the system displays the attributes defined in the tailor file as of interest in the `ouatt` variable. If the position is at the organisation level, the attributes `orgatt` defined in the tailor file will be used.]

Typing "`1`" will cause, in this case, to modify the telephone number.

```
Telephone number [+44-71-380-7214]:
```

To delete the telephone number, type "-". To modify the telephone number, type the new number. If you have a new telephone number in addition to the existing one, type $< CR >$ and the system will prompt you for

```
Optional additional Telephone number:
```

and then enter the new number.

A special attribute is the telex number, which is composed of three different fields: the number, the country and the answerback. Enter each of the fields in a separate line.

```
telexNumber (number, country and answerback)
Number [28722 ]:
Country [ G ]:
Answerback [ UCLPHYS]:
```

Change Password

This option allows the user to change the password. The user must first enter the old password, at the prompt:

```
Old password, q to quit changing password  :
```

If the user fails to enter the correct old password, it will prompt for it again. If the user fails three consecutive times, the user will be thrown out of the service.

Once the old password has been successfully entered, IDM will prompt for the new password. Then it will prompt again for the new password for verification purposes. Throughout this operation passwords are not displayed. Entering "`q`" at any of the prompts, will stop this operation.

- The username is specified in the tailor file, but the position is not. [This is the least common of the cases, and is likely to be used only by Directory managers who require a different position in the directory every time they use IDM. The first prompt the Directory Manager will receive is to specify the directory position desired.]

  This will be in a similar way to the authentication, with the exception of the user's name and password.

Once the directory position is determined in any of the three different ways, a message, like the one shown below is displayed:

```
You are managing the Directory at: Computer Science
                                   University College London
                                   GB
```

4.1.3 Initial Menu

Once the user has been authenticated and the position in the directory has been determined, the initial menu will be displayed:

```
The following options are available
             1  Maintain organisation entries
             2  Update organisation header
             3  Change manager's password
             4  Help overview
Enter number or q to quit  [1  Maintain organisation entries]:
```

Option `Maintain organisation entries` is explained in Section 4.1.4.

Update Organisation Header

This option allows you to modify the header information of an organisation or department, depending on your position in the directory. For example:

```
Computer Science
  1  Telephone number     +44-71-380-7214
  2  Telex number: 28722, country: G, answerback: UCLPHYS
  3  Fax                  +44-71-387-1397

Enter number of attribute, 'new' for new attributes,
q to quit this entry:
```

Fuzzy matching is performed, (unless entering a name registered directly under the country level). If more than one entry matches the criteria, a list is displayed, otherwise a message like the following is displayed:

```
You have been identified as user: Hector Nunez
                                  Computer Science
                                  University College London
                                  GB

Please enter your password :
```

The final step of the authentication process is to enter the password. The password will not be displayed on the screen while the user types it. Do no enter the password until IDM requests it, as any previous input will be discarded. If the user fails to enter the correct password, the system will request it again. If the user does not enter the correct password in three consecutive attempts, IDM will exit.

4.1.2 Position in the Directory

There are three ways the initial position in the directory can be determined.

- The tailor file defines it, [via the `posdit` variable].
- The position is derived from the interactive authentication of the user. For example, if the user has specified:

  ```
  Hector Nunez
  Computer Science
  University College London
  GB
  ```

  The position will be:

  ```
  Computer Science
    University College London
      GB
  ```

```
Please enter the name of the organisation you wish to manage
Organisation name, * to list organisations  : UCL
University College London
```

In this case UCL matched a single entry, and the name for the entry is displayed. If more than one entry matches the name specified, the entries will be listed to allow the user to select one.

Entering the organisation name is mandatory, unless the tailor file allows you to be authenticated directly beneath the country level [(`org_compel:n`)]. In this case, just enter $< CR >$ at the prompt, and IDM will go to the person's prompt.

Department

When an organisation has departments[1], IDM will prompt the user for the department name.

```
Optional Department name, * to list departments  : cs
Computer Science
```

Optionally, if the user is found beneath a department, the user may enter the department name. If the user does not belong to a specific department, then just press $< CR >$. If there are no departments beneath the organisation, the prompt is not displayed, and continues with the next prompt.

[Directory managers may disable/force the department prompt by setting the variable `dept` in the tailor file.]

User Name and Password

IDM will search for the entry "Directory Manager". If it is found, it will prompt for the password.

If the entry for "Directory Manager"' is not found, it will display the following message:

```
Your name, * to list persons  :  Hector
```

[1] In X.500 terms, organizational units.

```
Your terminal size is set to 65 lines.
If that seems OK, press <CR>, otherwise enter
the correct number (24 is normal)
Length of screen in lines:
```

[Directory managers may disable this prompt by setting the `wanAccess` variable in the tailor file to `off`.]

Authenticating the User

IDM, as a management tool, needs to authenticate the user. If the tailor file does not specify the user [(`username`)] and the password [(`password`)], the user must identify him/herself. To facilitate this, the system assists the user to navigate the directory tree.

In all the prompts described below, the user is allowed to enter an asterisk, as a valid wildcard. The system will then list the entries from which the user can then select one.

If the user wishes to quit from IDM while specifying the user name, typing "q" will cause a prompt to appear to confirm if the user wants to quit from the service. "y" will take the user out from the service, and "n", will go back to the country prompt. This option may also be helpful in case a wrong country, organisation or department has been entered.

Country

The first prompt helps the user to set the country:

```
Please enter the country of the organisation you wish to manage
Country name, * to list countries  : GB
GB  --  United Kingdom
```

Once the user has entered the country (in this case GB), the system displays the two letter code, as well as a longer form of the country name.

Organisation

The following prompt asks the user to specify the organisation:

- It will be used as a public access service by national pilots on a national backbone server;
- Anyone is able to modify their own existing entry in the Directory;
- A properly configured version of IDM can be used by local Directory users;
- A properly configured version of IDM can be used by national pilot managers.

In order to satisfy the different needs of the different users, a tailor file is used to identify the preferences of a particular user/installation.

Due to the interactive nature of the tool, it is not suitable for bulk data entry. If the user has a very large number of entries to be entered in the Directory, there are other tools designed for such task (such as the DMTOOLS distributed with ISODE version 8.0).

Real end-users (hereafter referred only as users), should only need to read this introductory section and Section 4.1. Directory managers also need to read Sections 4.3 and 4.4. National managers who would like to offer registration facilities for their country, also need to read Section 4.2.

Section 4.1 describes the interface for the user. Due to the strong relationship between the tailor file and the interface there are some notes intended for the Directory Manager; these are enclosed between square brackets ([]) and a user may skip them.

Section 4.2. describes how to set up IDM for adding organisations to the Directory. Section 4.3 describes the tailor file in detail, covering each variable referred to in this document and Section 4.4 suggests some possible configurations.

4.1 Using IDM

4.1.1 Starting up

Some terminal protocols do not propagate the screen size correctly, therefore when this information is not known to IDM, at start-up time, a message will be displayed on the screen, to confirm your terminal size.

Chapter 4

IDM

IDM (which stands for **I**nteractive **D**irectory **M**anager) is a directory user interface primarily intended to serve as a public access management interface. It is a companion to the PARADISE DE (Directory Enquiries) interface and is primarily aimed as a simple to use management tool, although more sophisticated users should find that it is flexible enough to handle the majority of their needs.

The interface is to be used as a tool for the remote management of accounts in the X.500 Directory.

The primary aims of the design are that:

- The target audience are European SMEs, organisations who would otherwise not consider managing their own data in the Directory;
- It is a public access service running on one of the central PARADISE servers alongside DE;
- Users have the possibility to register organisations in the Directory and authenticated users are able to use IDM to add, modify and delete values in the organisational header as well as to add, modify and delete entries below the organisational level;
- Authenticated users are able to use IDM to add, modify and delete values in the organisational unit header as well as to add, modify and delete entries below the organisational unit level.

Secondary aims are that:

`fuzzyMatching:` DE uses fuzzy matching if exact and substring matching fails. This option allows fuzzy matching to be turned off completely - many users find the results of fuzzy matching to be unpredictable to be useful. The default setting is on.

```
fuzzyMatching:on
```

3.3 Dynamic tailoring

It is possible for a user to modify some variables used by DE while running the program. In particular, this allows a user to recover from a situation where the terminal emulation is not working correctly — an apparently frequent occurrence!

Dynamic tailoring of variables is offered by use of the SETTINGS help screen. Typing `?settings` at any prompt will display the current settings of dynamically alterable variables. The user is then offered the opportunity of modifying the variables. Variables which may currently be altered in this way are:

`termtype:` The user's terminal type, as set in the UNIX "TERM" environment variable.

`invvideo:` Turn inverse video "on" (if the terminal supports it) or "off".

`cols:` Set the width of the screen to a number of columns.

`lines:` Set the length of the screen to a number of lines.

`remoteAlarmTime:` A remote search is one where the country and organisation name searched for not the same as the defaults. If the search has not completed within a configurable number of seconds, a message is displayed warning the user that all may not be well. The default setting is 30 seconds. The search, however, continues until it returns or is interrupted by the user.

```
remoteAlarmTime:30
```

`localAlarmTime:` As for *remoteAlarmTime*, except for local searches. The default setting is 15 seconds.

```
localAlarmTime:15
```

`quitChars:` The number of characters of the word "quit" which a user must type to exit. The default setting is 1 character.

```
quitChars:1
```

`allowControlCtoQuit:` This enables or disables the feature where a user may exit the program by typing `control-C` at the prompt for a person's name. The default setting is on.

```
allowControlCtoQuit:on
```

`wanAccess:` This enables the feature where a user is asked to confirm that the size of their terminal is really greater than 24 lines. This helps with telnet access if the screen size is not propagated. The default setting is off.

```
wanAccess:on
```

`deptQ:` This allows the department question to be turned off. The default setting is on.

```
deptQ:on
```

3.2.4 Miscellaneous tailoring

There are a number of miscellaneous variables which may be set.

`password:` This is the password associated with the entry specified by the `username` variable. If a password is specified the interface tries to bind using simple authentication. If the password is wrong, the bind fails and an appropriate message is displayed.

```
username: thepassword
```

`maxPersons:` If a lot of matches are found, DE will display the matches in a short form, showing email address and telephone number only. Otherwise full entry details are displayed. This variable allows the number of entries which will be displayed in full to be set — the default is 3.

```
maxPersons:2
```

`inverseVideo:` Prompts are by default shown in inverse video. Unset this variable to turn this off.

```
inverseVideo:on
```

`delogfile:` Searches are by default are logged to the file *de.log* in `ISODE`s LOGDIR. They can be directed elsewhere by using this variable.

```
delogfile:/tmp/delogfile
```

`logLevel:` The logging can be turned off. It can also be turned up to give details of which search filters are being successful — this will hopefully allow some tuning of the interface.

- Level 0 — turns the logging off.
- Level 1 (the default level) — logs binds, searches, unbinds
- Level 2 — gives level 1 logs, and logging analysis of which filters have been successful and which failed

```
logLevel:2
```

`prratt:` These attributes are displayed (as well as the common attributes — see above) if an entry for a person, room or role is displayed.

```
prratt:rfc822Mailbox
prratt:roomNumber
```

`mapattname:` This attribute allows for meaningful attribute names to be displayed to the user. The attribute names in the quipu oidtables may be mapped onto more user-friendly names. This allows for language independence.

```
mapattname:facsimileTelephoneNumber fax
mapattname:rfc822Mailbox electronic mail
```

`mapphone:` This allows for the mapping of international format phone numbers into a local format. It is thus possible to display local phone numbers as extension numbers only and phone numbers in the same country correctly prefixed and without the country code.

```
mapphone:+44 71-380-:
mapphone:+44 71-387- 7050 x:
mapphone:+44 :0
```

`greybook:` In the UK, big-endian domains are used in mail names. By setting this variable on, it is possible to display email addresses in this order rather than the default little-endian order.

```
greyBook:on
```

`country:` This allows for the mapping of the 2 letter ISO country codes (such as GB and FR) onto locally meaningful strings such as, for English speakers, Great Britain and France.

```
country:AU Australia
country:AT Austria
country:BE Belgium
```

```
byebyeMessage:on
```

`default_country:` This is the name of the country to search by default: e.g., "GB".

```
default_country:gb
```

`default_org:` This is the name of the organisation to search by default: e.g., "University College London"

```
default_org:University College London
```

`default_dept:` This is the name of the department (organisational unit) to search by default: e.g., "Computing". This will usually be null for public access duas.

```
default_dept:
```

3.2.3 Attribute tailoring

The following configuration options all concern the display of attributes. The settings in the *detailor* file will probably be OK initially.

`commonatt:` These attributes are displayed whatever type of object is being searched for, be it an organisation, a department, or a person.

```
commonatt:telephoneNumber
commonatt:facsimileTelephoneNumber
```

`orgatt:` These attributes are displayed (as well as the common attributes — see above) if an entry for an organisation is displayed.

```
orgatt:telexNumber
```

`ouatt:` These attributes are displayed (as well as the common attributes — see above) if an entry for an organisational unit (department) is displayed.

```
ouatt:telexNumber
```

If no such file exists, the system wide *detailor* file is read – this file is situated along with all the help files in a directory called *de/* under `ISODE`'s ETCDIR.

3.2.1 Highly recommended options

The *detailor* file contains a number of tailorable variables, of which the following are highly recommended:

`dsa_address:` This is the address of the access point DSA. If two or more dsa_address lines are given, the first dsa_address is tried first, the second dsa_address is tried if connecting to the first address fails. Third and subsequent dsa_address entries are ignored. If there is no dsa_address entry in the *detailor* file, the first value in the *dsaptailor* file is used.

```
dsa_address:Internet=128.16.6.8+17003
dsa_address:Internet=128.16.6.10+17003
```

`username:` This is the username with which the DUA binds to the Directory. It is not strictly mandatory, but you are strongly encouraged to set this up. It will help you to see who is connecting to the DSA.

```
username:@c=GB@o=X-Tel Services Ltd@cn=Directory Enquiries
```

3.2.2 Variables you will probably want to configure

You will almost certainly want to set at least some of these to suit your local system:

`welcomeMessage:` This is the welcoming banner message. The default is "Welcome to the Directory Service".

```
welcomeMessage:Welcome to DE
```

`byebyeMessage:` This enables/disables the display of a message on exiting DE. This variable takes the values "on" and "off". The message displayed is the contents of the file *debyebye,* which should be placed in the same directory as all DE's help files. The default is not to display an exit message.

looking for commas in the entered name), the other prompts are not offered and a UFN search is made. The following is an example of usage.

```
Person's name, q to quit, * to list people, ? for help
:- barker, ucl, gb

Searching ...

GB
 University College London
  Computer Science
   Paul Barker
        commonName            Paul Barker
        electronic mail       P.Barker@cs.ucl.ac.uk
```

As before, if a large number of matches are found, the user is invited to select from the list offered. If none are selected, the program may try and find the entry elsewhere – it depends on how closely what the user types matches the names of entries in the Directory.

3.1.6 Interrupting

If the user wishes to abandon a query or correct the input of a query (maybe the user has mis-typed a name), *control-C* resets the interface so that it is waiting for a fresh query. Typing "q" at prompts other than the person prompt results in the user being asked to confirm if they wish to quit. If the user replys "n", the interface resets as if *control-C* had been pressed.

3.1.7 Quitting

Type "q" (or optionally "quit" — see below) at the prompt for a person's name. Type "q" at other prompts, and the user is asked to confirm if they wish to quit. If the use replys "n", the interface resets to allow a query to be entered afresh.

3.2 Configuration of DE

DE is configurable either through a user's private tailor file or by a system wide tailor file. DE tries to read a user's *.derc* file in their HOME directory.

registered under locality entries underneath the respective country entries. DE does not offer a further prompt at the initial asking for query details, but offers to search localities if an organisation cannot be found and locality entries exist in the country in which the search is being made.

The following example shows what happens when a search for the "widget corp" within Australia fails to find an entry for that company immediately under the Australia node.

```
No organisations match 'widget corp'

Checking to see if entry might be under a locality

Found the following entries.  Please select one from the list
by typing the number corresponding to the entry you want.

Australia
   1 ACT
   2 NSW
   3 NT
   ...
Locality name, * to list localities, ? for help
```

The user types in the locality name or corresponding number, and that locality is then searched for the the organisation. If that search fails, the user is offered the chance to search further localities until success is achieved or the search is abandoned.

3.1.5 Searching by use of User-Friendly Naming

A style of querying which is becoming increasingly popular is that of User-Friendly Naming (UFN). The essence of this style of query formulation is that a user types in a sequence of strings which represent the sought person's name, department (often omitted), organisation, locality (often omitted) and country. Note that the "name and address" is entered in paper envelope order. It is possible to reduce the number of components which have to be typed by locally configuring a UFN environment - see the file *.../dsap/ufnrc* in the ISODE source distribution for more details.

User-friendly naming is invoked by entering the UFN at the prompt for the person's name. If a UFN is entered (the program decides it has a UFN by

```
Got the following approximate matches.  Please select one from the
list by typing the number corresponding to the entry you want.

    1 Faculty of Mathematical and Physical Sciences
    2 Medical Physics and Bio-Engineering
    3 Physics and Astronomy
    4 Psychiatry
    5 Psychology
```

Selecting "Physics and Astronomy" by simply typing the number 3, the search continues, and the following is displayed:

```
United Kingdom
  University College London
    Physics and Astronomy

Got the following approximate matches.  Please select one from the
list by typing the number corresponding to the entry you want.

     1 C L Jones     +44 71-380-7139
     2 G O Jones     +44 71-387-7050 x3468  geraint.jones@ucl.ac.uk
     3 P S Jones     +44 71-387-7050 x3483
     4 T W Jones     +44 71-380-7150
```

In this condensed format, telephone and email information is displayed.

3.1.3 Searching for other information

Information for organisations can be found by specifying null entries for the person and department.

Information for departments can be found by specifying null input for the person field.

Information about rooms and roles can be found as well as for people by, for example, entering "secretary" in the person's name field.

3.1.4 Looking for entries held under localities

Much of the current Directory Information Tree conforms to the abstraction offered by DE, which is people within departments within organisations within countries. However, an increasing number of organisations are being

type of "dumb".

It is possible to configure DE to force confirmation of screen lengths of greater than 24 lines – this helps with WAN access as some virtual terminal protocols do not propagate the screen size.

3.1.2 Searching for a Person

The interface prompts the user for input with the following four questions (note that it is possible to optionally suppress the department question):

```
Person's name, q to quit, * to list people, ? for help
:- barker
Dept name, * to list depts, <CR> to search all depts, ? for help
:- cs
Organisation name, <CR> to search 'ucl', * to list orgs, ? for help
:-
Country name, <CR> to search 'gb', * to list countries, ? for help
:-
```

Note from the above example that it is possible to configure the interface so that local values are defaulted: RETURN accepts "ucl" for organisation, and "gb" for country. The above query returns a single result which is displayed thus:

```
United Kingdom
  University College London
    Computer Science
      Paul Barker
        telephoneNumber       +44 71-380-7366
        electronic mail       P.Barker@cs.ucl.ac.uk
        favouriteDrink        guinness
                              16 year old lagavulin
        roomNumber            G21
```

If several results are found for a single query, the user is asked to select one from the entries matched. For example, searching for "jones" in "physics" at "UCL" in "GB" produces the following output:

```
United Kingdom
  University College London
```

Chapter 3

DE

DE (which stands for **D**irectory **E**nquiries) is a directory user interface primarily intended to serve as a public access user interface. However, the burgeoning number of configurable options are making DE highly suitable as an interface to be used as a personally customised tool. This trend will continue with the next release of DE.

DE is a successor to, and borrows something of the style of, the *dsc* interface released in a previous version. It is primarily aimed at the novice user, although more sophisticated users should find that it is flexible enough to answer the majority of queries they wish to pose.

DE has more features than those discussed below. However, the program has extensive on-line help as it is envisaged that it will often be used in environments where neither on-line help nor paper documentation will be available.

3.1 Using DE

3.1.1 Starting up

DE will work quite happily without any knowledge of the user's terminal type, assuming a screen size of 80 x 24 in the absence of terminal type information. If, however, the user's terminal type is not recognised by the system, the user will be prompted to try and enter an alternative. The user can examine a list of valid terminal types; typing `<CR>` accepts a terminal

replace the directory

```
others/quipu/uips/de
```

and create a new directory:

```
others/quipu/uips/idm
```

2.3 Compilation

It is assumed you have already configured ISODE version 8 for you system, if not you should do this now, following the ISODE instructions.

To compile the PARADISE package enter

```
./make paradise
```

from the `isode-8.0` directory.

To install the PARADISE package enter

```
su
./make inst-paradise
```

from the `isode-8.0` directory.

ftp.paradise.ulcc.ac.uk (128.86.8.55)

If you also need to obtain ISODE version 8, then you should recover the file

isode-8.tar.Z

also in the

src/

directory.

2.2 Unwrapping the Software

This package should be installed over the top of ISODE version 8, then the normal ISODE compilation and installation procedure, defined in the ISODE documentation should be followed.

To unwrap this package, you should go into the ISODE version 8 UNIX directory:

```
cd isode-8.0
```

Then uncomress and unarchive the software:

```
zcat < isode-paradise.tar.Z | tar xvf -
```

This will overwrite the following files:

```
Makefile
dsap/common/filter.c
dsap/net/dapbind.c
quipu/entry_load.c
quipu/get_dsa_info.c
quipu/ds_read.c
quipu/dsp_cache.c
quipu/update.c
support/tsapd.c
util/make-lib.sh
others/quipu/uips/Makefile
```

Chapter 2

Installation of the Package

The PARADISE package is released as an upgrade to ISODE version 8. This chapter describes how to obtain the software, compile and install it.

2.1 Obtaining the Software

The PARADISE package is available from the PARADISE machine running at ULCC.

The upgrade can be retrieved via anonymous FTAM from the filestore registered in the Directory as

file service, lost, paradise, cosine, europe

Use the username "ANON" with no password, and recover the file

isode-paradise.tar.Z

from the

src/

directory. If your FTAM can not access the Directory, the address is

IXI DTE: 20433450400259 PSS DTE: 23421920014859

using the ASCII transport selector 259.

If you do not have FTAM (an implementation of FTAM can be found in the PARADISE DSA/DUA package first release, or ISODE version 8), you can use anonymous Internet FTP to host

1.1 Roadmap

This document describes how to install and operate the PARADISE software. Chapter 2 describes the installation process, Chapter 3 describes how to run the DE user interface, and Chapter 4 describes how to run the IDM interface.

is IDM, the Interactive Directory Manager, mentioned above.

Announcements will be made for those with this release of the PARADISE package, as will news of any interim changes and features of general interest concerning PARADISE.

It will greatly assist the pilot activity if, once you have installed this software, you keep in touch with the project through comments, positive or otherwise, about this product or any other aspect of the service to the PARADISE HelpDesk, which is available during (British) working hours at:

PARADISE Helpdesk,
ULCC,
20 Guilford Street,
London WC1N 1DZ,
UK.

Phone:	+44 71 405 8400 x432
Fax:	+44 71 242 1845
Internet:	helpdesk@paradise.ulcc.ac.uk
X.400:	s=helpdesk;ou=paradise;o=ulcc;p=uk.ac;a=␣;c=gb

OR, by post

PARADISE Project Manager
University College London (Computer Science),
Gower Street,
London WC1E 6BT,
UK.

PARADISE is the focal point for over 20 national Directory pilots in Europe and provides vital co-ordination services from the University of London Computer Centre (ULCC) with support through X-Tel Services Ltd, a Nottingham-based software company. One of these services is a public interface to the Directory which allows free access to over half a million entries scattered over more than 450 sites in 30 countries worldwide. The project has recently announced another public management interface targetted primarily at small-to-medium size enterprises (SMEs), and designed to allow organisations to remotely manage their own Directory accounts.

One aspect of the project has been the PARADISE questionnaire concerning the attitudes and expectations of European Service Providers to the provision of X.500 Directory services. The survey was carried out by PTT Telecom, the Netherlands, Telecom Finland and PTT Switzerland. The responses from 19 PTTs to issues such as the migration of telephony-based services to the X.500 standard confirmed considerable medium-to- long term interest in seeing both a stable X.500 standard and integration with X.400 electronic mail.

The six-monthly PARADISE International Report acts as a forum for the discussion of X.500 developments. The third and latest issue, published in May 1992, features a survey of X.500 products as well as a summary of the PTOs report.

The operational core of the pilot is the provision of a central DSA (the distributed Directory database) and DUA (the user interface), both of which are based at ULCC with support from X-Tel.

Over the last six months, SNI, Bull and ICL have announced their intention to collaborate in PARADISE. These manufacturers have recently launched X.500 products and their initial involvement will be to demonstrate operational interworking with QUIPU, the pilot's principal Directory implementation, which evolved out of ESPRIT project INCA.

The release of this packaged software is intended for organisations wishing to use the Directory service or participate in the pilot themselves. The DSA is based on QUIPU 8.0, and includes the rest of the ISODE package. The DUA is the third release of DE, Directory Enquiries which is used to provide the public access interface which the project is offering on a service basis and provides a simple interrogation tool to make enquiries in the Directory. Instructions are provided for the installation of both the DSA and the DUA; or simply the DUA alone. Also included in this second release of the package

Chapter 1

The PARADISE Project

PARADISE, the pilot international Directory service based on the X.500 standard, started in November 1990, is based at University College London (UCL), and funded under the umbrella of Eureka project, COSINE. Aimed at serving the European research and development community, the distributed directory service is available across public networks and provides a range of information about organisations and their employees, including data such as:

- telephone numbers;
- fax numbers;
- electronic mail addresses;
- room numbers;
- corporate logos/street maps;
- photographs;
- voice messages.

A distributed Directory has long been seen as a key element in creating a computer networking infrastructure which will facilitate the use of electronic mail alongside its use as a stand-alone "white pages" and "yellow pages" service.

The PARADISE DSA and DUA Package:

Release 2

X-Tel Services Ltd University College London
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