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Install and Release Notes - June 1999

INFO~ODBC Lite v 2.09

Windows NT * Windows 95 * Windows 98

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Software

The CD or electronically transfer files will currently consist of 15 files, one of which is an install tool and called:-

Setup.exe

Specification

INFO~ODBC Direct is a piece of middleware that allows users to connect INFO databases to ODBC enabled PC products. The INFO database files could have been created by PC INFO, ARC/INFO, INFO 32, or any revision of INFO. Where a UNIX machine has been joined to the PC network so that UNIX discs appear as another PC drive, then INFO~ODBC can connect to INFO files there as well. Simba (a freeware product) has been used successfully at Doric and other such networking products may work as well.

INFO~ODBC Direct sits on the client or PC whereas INFO~ODBC Server sits on the server (UNIX or NT) and does the bulk of the work there.

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1. Installing the software driver

Please read this page completely BEFORE installing the software.

The install program is called **setup.exe**.

During the install phase you will be asked to confirm where the Security files should be loaded. If the default offered is unacceptable you may BROWSE and choose a new directory or if you enter one that does not exist, it will create a new directory of that name.

Execute the **setup.exe** file as supplied by any of the following methods:

START button choose RUN and type **X:\setup.exe** (where X is your CD drive)

Windows Explorer, locate the supplied file and double click on **setup.exe**.

Control Panel choose Add/Remove option and enter **X:\setup.exe**

The install program will copy the files listed below to the windows system directory depending on the file system you are running typically

C:\WINDOWS\SYSTEM	for Windows 95 or 98
or C:\WINNT\SYSTEM32	for Windows NT.

infood32.dll	simeng32.dll
infocf32.dll	simsy32.dll

The following keys will be added to your registry:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBCINST.INI\Doric INFO ODBC]
  "Driver"="C:\WINDOWS\SYSTEM\infood32.dll"
  "Setup"="C:\WINDOWS\SYSTEM\infocf32.dll"
[HKEY_LOCAL_MACHINE\SOFTWARE\ODBC\ODBCINST.INI\ODBC Drivers]
  "Doric INFO ODBC"="Installed"
```

Note: the directory may differ, for example on NT it could be C:\WINNT\SYSTEM32

The install procedure will also load the files listed below; there are several default directories and they may be changed. The first default directory is the path set by the environment variable _INFOSYS. Where this has not been set then C:\INFOSYS is the second default. However if INFO~ODBC was previously loaded and not uninstalled, then the previous directory will still be held in the REGISTRY and that will be the default directory presented. In all cases it can be over ridden with a directory of your choice.

sys.dr9
sys000.dat sys001.dat sys002.dat sys003.dat sys004.dat sys005.dat
sys000.nit sys001.nit sys002.nit sys003.nit sys004.nit sys005.nit

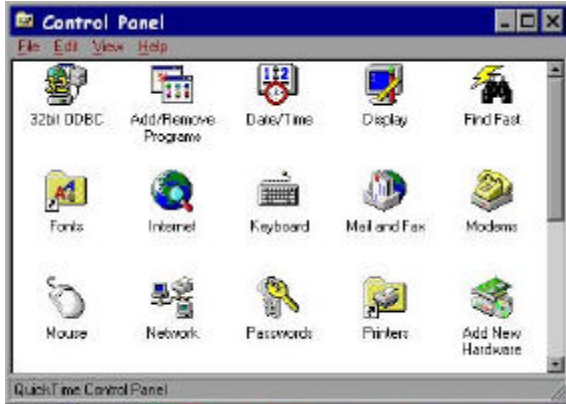
These files form the security database system. It has been pre-set with a Data Source Name (DSN) of INFOAdmin and has been added to the list of ODBC data sources ready for use.

Please note – at the end of the install you will NOT find an INFO~ODBC executable, all the necessary software will be called via by the Microsoft ODBC Data Source Administrator.

2 How to use the software Drivers

INFO~ODBC creates a permanent link to an INFO or ARC/INFO database. With the help of Microsoft's ODBC Data Source Administrator a Data Source Name (DSN) is created & added to the list of ODBC databases, making it available to ODBC enabled PC products.

For users of products such as Visual Basic, it is possible to have DSN-less connections - please see section 6 notes on INFO~ODBC inside Visual Basic or similar products. We recommend that all users try simple links to products such as Access as shown here, before progressing to more complicated products.



Microsoft's ODBC Data Source Administrator can be found from the Start Button or Control Panel

Windows 95/98
Settings/Control Panel/32bit ODBC

or
Windows NT
Settings/Control Panel/ODBC

This will show the available ODBC Data Source Names (DSN) and will include INFOAdmin – the DSN for the INFO database security system



Add or configure a DSN for an existing INFO or ARC/INFO system

Choose the **User DSN** (an entry will be automatically created under the **File DSN** tab)

To set up a new DSN

Click **Add**

To modify an existing DSN
Highlight it

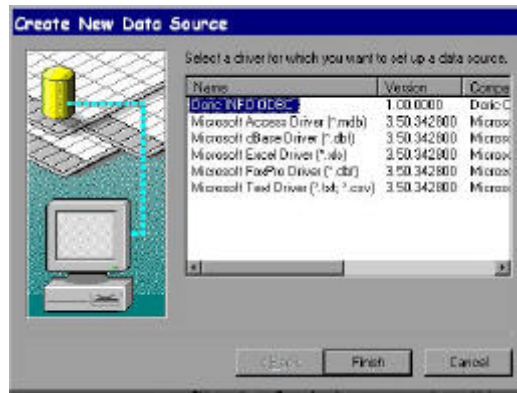
Click **Configure**

(This will be as Add but it misses the first step and goes to Doric INFO ODBC Setup)

A list of ODBC Drivers is shown.

Highlight “**Doric INFO ODBC**”

Click **Finish**.



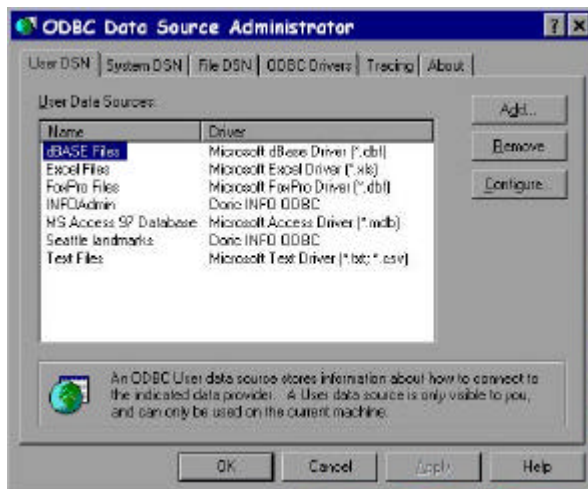
The Doric INFO ODBC Setup dialog is displayed



Use the **Data Source Name** (DSN) field to give this new data source a name by which it will be known to SQL for example “Seattle Landmarks”. This DSN will be used in future SQL or ODBC connect strings. In the **Data Directory** field type the full file path of an existing INFO data directory or Click **Browse**. For example

c:\mydata\seattle\arc.dir
c:\mydata\company\abc.dr9

When both the **DSN** and **Data Directory** fields are completed, Click **OK**



The new data source will now be listed in the corresponding tab (**User DSN, System DSN or File DSN**) in the ODBC Data Source Admin program.

Click **OK**
– the process is complete

3 INFOAdmin Customisation and Security Database (optional)

Overview - Customisation

Many ODBC enabled products have differing rules on naming conventions or “special” characters, a Translation or conversion table is available to allow the user as much flexibility as possible. The user may wish to alter the supplied set. See notes on TRANSLATION file below.

Overview - Security

PC users of INFO~ODBC fall into 2 main groups

- privileged user who has full access and is not controlled by a System Administrator
- non-privileged user with restricted access to the INFO or ARC/INFO database and controlled by a System Administrator

The supplied security database is shipped with a BLANK record on the USER file, (this file contains the passwords) which when present takes precedence over all other passwords so that PASSWORDS are not requested. If a password is required this blank record must be removed.

For non-privileged users requiring secure access, it is assumed the System Administrator will set up the ODBC Data Sources on the desired machine(s) and then set up rights to control the access by each of these users. Each user has an associated password and belongs to a user group. Access rights to databases and tables are assigned to users and groups. The access rights for a particular group can apply to all databases, or certain databases, or certain tables within certain databases. The system administrator is responsible for setting the access level for each group and user.

The supplied files

User and password information is stored in an INFO database called **sys.dr9**. A DSN – INFOAdmin - has been set up for you to access and alter this information as you require.

There are 6 files: USER, GROUP, DATABASE, TABLE, TRANSLATION & VARIABLES. The formats and fuller technical information can be found at the end of this document. The minimum requirements are 2 records; 1 USER record and 1 GROUP record.

The USER file is shipped with 2 records, the second of which is blank – to use the security system PASSWORDS this record MUST be removed.

The TRANSLATION file is shipped with several records which may be amended, added to or removed.

Please check them and re-set for your own usage.

If security is not an issue and the user has full access **the notes on security can be ignored** but please check the detail on the TRANSLATION file.

For more information see the Security Database Technical Information notes at the end of this document.

4 Using an ODBC enabled PC product of choice. (Access, Excel etc)

Once the DSN has been set up the INFO or ARC/INFO database is available to any ODBC enabled PC product. There are currently hundreds of products and more are being created all the time. It is not practical for us to test and give instructions on all of them. This software is merely a link – it creates a matching socket for ODBC enabled products to plug into. Access and Excel are perhaps the ones that most users are familiar with.

Microsoft ACCESS

Please ensure that the version of Access you have is ODBC enabled and that all functions have been loaded. The “basic” MS Office or Access install does not necessarily load all the functions required. You may need to install ODBC and/or MS Query functions. The following dialogue is pre-set by Microsoft and will vary due to the product version used and the Windows operating system.

Examples created under Windows NT4 and Office 97/98

Enter Access and create a new database.

From the **File** menu chose **Get External Data**. Highlight one option - **Link Table** or **Import**

Link Tables creates a permanent connection your INFO or ARC/INFO data with update capabilities.

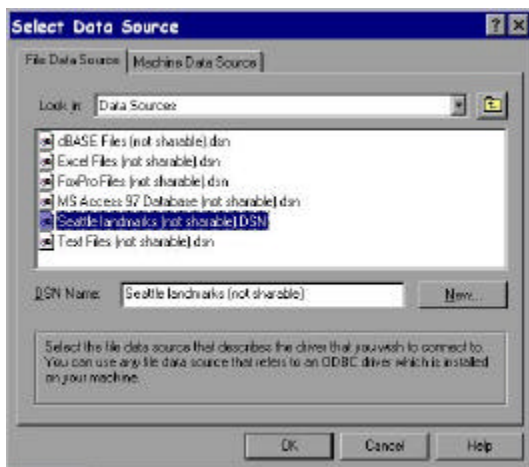
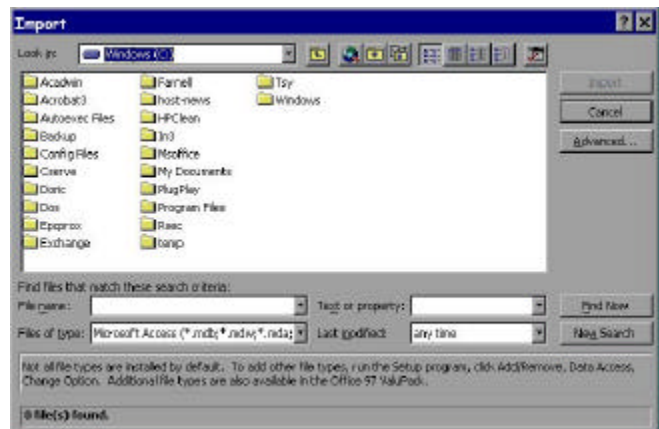
Import makes a copy of your DATA and does not allow update of the INFO or ARC/INFO database.

In either case set the type of file to be chosen in the Files of Type box

(bottom left of window)



using the drop down menu highlight **ODBC Databases (.)**.



Highlight the required **DSN**.

Click **OK**

PASSWORDS are optional (see Security Database Technical Information)

Enter Name and Password - these are supplied pre-set to:-

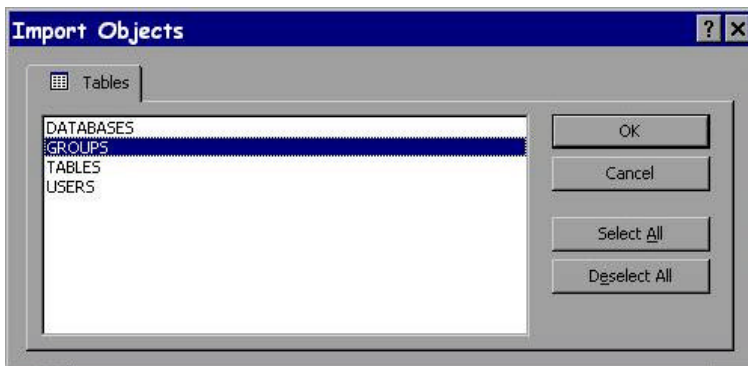


Name admin

Password **adminpass**

Remember the passwords are case sensitive.

If there is more than one file in the INFO or ARC/INFO database highlight those required by this application.

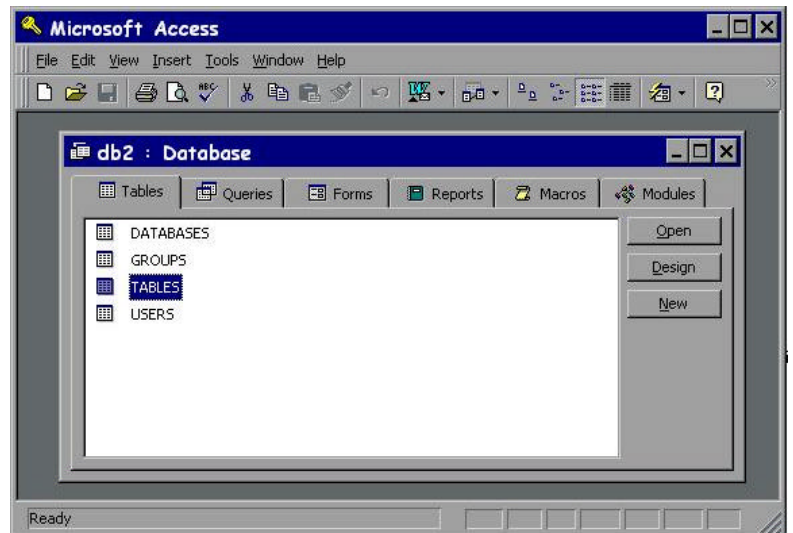


Note the Select all option.

When **ALL** required tables have been highlighted

Click **OK**

Continue with Access as you wish



DO NOT USE the RECNO field this will be updated automatically.

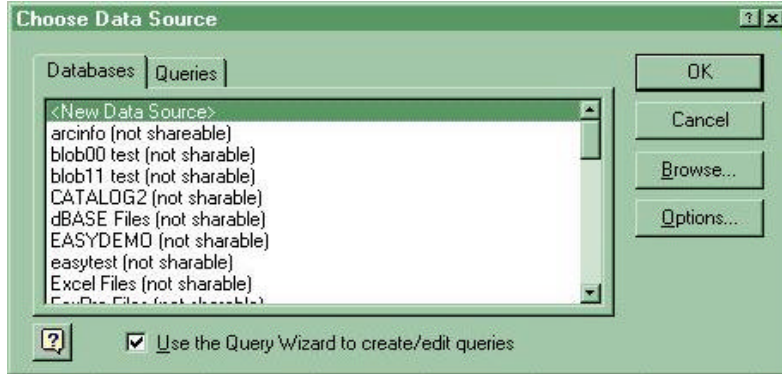
Microsoft Excel

Please ensure that the version of Excel you have is ODBC enabled and that the Query functions have been fully loaded, the “basic” install does not include this option. The following dialogue is pre-set by Microsoft and will vary due to the product version used and the Windows operating system.

Examples created using Windows 95 and Office 97.

Enter Excel and open a new spreadsheet.

From the **Data** menu chose **Get External Data**. Highlight - **Create New Query**



Highlight DSN of your choice

Click **OK**

PASSWORDS are optional (see Security Database Technical Information)

Enter Name & Passwords

Pre-set

admin

adminpass

Passwords are case sensitive.



Choose Files

and items

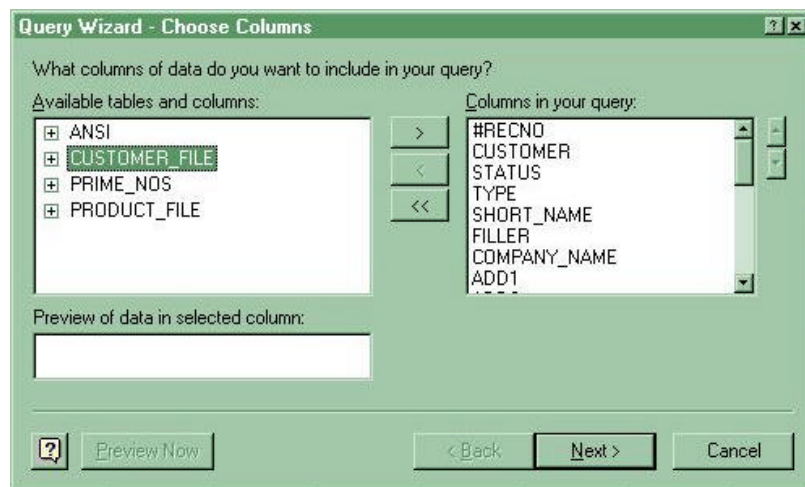
with Highlight and

>

<

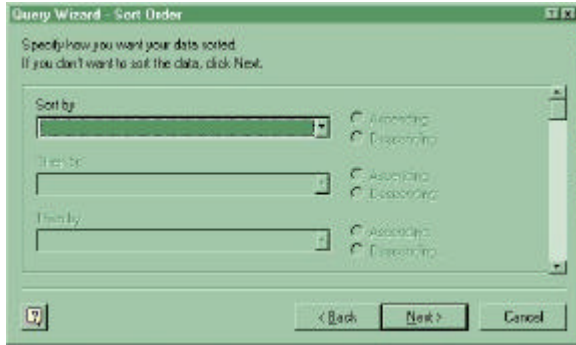
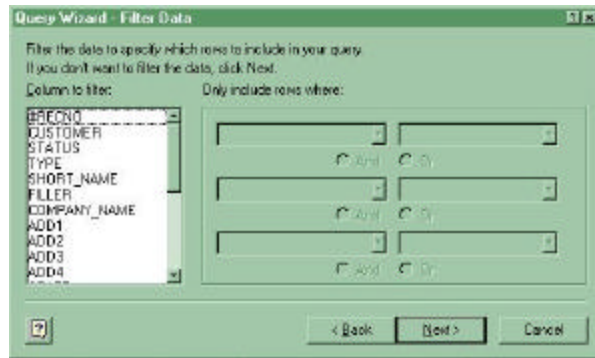
<<

Buttons



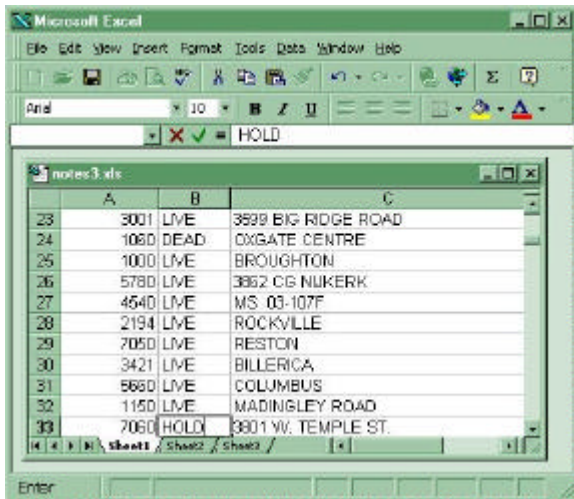
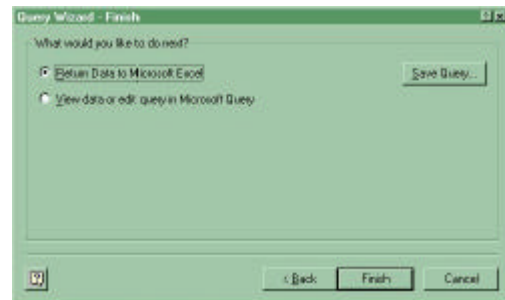
Click **Next**

Filter Data if necessary here



Sort data

Click **Finish** to return data to EXCEL



5 Upgrades & Known limitations

Upgrades

Version 1.0

Original release

Would users upgrading from version 1.0 please contact Doric for fuller advice on upgrading to any version

Version 1.0 to Version 1.1

- Install & Uninstall procedures enhanced
- Automatic replacement of special characters by underscore (_)
- Automatic truncation of long names

Version 1.1 to version v 2.09

- TRANSLATION file added to INFOAdmin to allow users to specify their own values for replacement of special characters or names.
- VARIABLES file added to INFOAdmin to allow for different environment variables by groups.
- Y2K compliant - Upgrade from SimbaEngine 4 to SimbaEngine 5.1

The following are NOT available in INFO~ODBC Lite

- INDEXING applied on top of existing ARC/INFO tables
 - User Selectable
 - Automatically Maintains Multiple Sort Sequences
 - Allows use of previously defined UNIX ISAM files
- DBMS Transaction Controls
 - Start
 - Rollback
 - Commit
 - Multi-User concurrency locking

Known limitations

INFO file or item name incompatibility

File or item names may be truncated, they will be numbered if duplicates have been created - use of the TRANSLATION file could help resolve any conflicts.

A pathname length of over 300 characters is not allowed.

Please remember that not all ODBC enabled products follow the same rules.

There are known problems making updates to INFO data using Access 2000

6 INFO~ODBC in Visual Basic or similar products

INFO~ODBC enables you to access your INFO data via DAO, RDO and ADO, so you can choose the most appropriate database technology for your application.

The following simple examples demonstrate the process of connecting to and programmatically reading INFO using the various COM objects used for data access.

Example 1 - Using DAO for programmatic access to your INFO data (without aDSN)

Create a new VB project. Use the menu project/references to add “*Microsoft DAO 3.x Object Library*” Draw a *List* control on Form1. Add the following code to Form1.

```
Private Sub Form_Load()  
    Dim e As DAO.DBEngine  
    Dim cn As DAO.Connection  
    set e = CreateObject("dao.dbengine.36")  
    e.DefaultType = dbUseODBC  
    if 1 then  
        ' using a DSN  
        Set cn = e.OpenConnection(Name:="MyDSN")  
    else  
        'or not using a DSN  
        Set cn = e.OpenConnection(Name:="", _  
            Connect:="odbc;DRIVER={Doric INFO ODBC};DBQ= c:\MyPath\info\arc.dir")  
    endif  
    'issue SQL commands to be executed  
    cn.Execute ("update table1 set MyField1 = 'abc' where MyField2 = 123")  
  
    'perform query and retrieve result programmatically  
    Dim rs As DAO.Recordset  
    set rs = cn.OpenRecordset("select * from MyTable")  
  
    'you can now access the INFO data  
    While Not rs.EOF  
        Dim f As Field  
        Dim l As String  
        l = ""  
        For Each f In rs.Fields  
            l = l & f & ", "  
        Next f  
        L = Left(l, Len(l)-2)  
        List1.AddItem l  
        rs.MoveNext  
    Wend  
End Sub
```

Example 2 - Using DAO to view and edit your INFO data

Create a new VB project. Use the menu project/components to add "Microsoft Data Bound Grid Control"
Draw *Data* and *DBGrid* controls on the new VB form.
Set the following property `DBGrid1.DataSource = Data1`.
Add the following code to Form1.

```
Private Sub Form_Load()  
    If 1 then  
        'using a DSN  
        Data1.Connect = "ODBC;DSN=MyDSN"  
    Else  
        'not using a DSN  
        Data1.Connect = "odbc;DRIVER={Doric INFO ODBC};DBQ= c:\MyPath\info\arc.dir"  
    EndIf  
  
    Data1.RecordSource = "MyTable"  
    Data1.DefaultCursorType = ODBCcursor  
    Data1.DefaultType = UseODBC  
End Sub
```

Example 3 - Using RDO for programmatic access to INFO data

Create a new VB project. Use the menu project/references to add "Microsoft RemoteData Object 2.0".
Draw a *List* control on Form1. Add the following code to Form1.

```
Private Sub Form_Load()  
    Dim cn As rdoConnection  
    Dim en As rdoEnvironment  
  
    Set en = rdoEnvironments(0)  
  
    If 1 Then  
        'using a DSN  
        Set cn = en.OpenConnection(dsName:="MyDSN", Prompt:=rdDriverCompleteRequired)  
    Else  
        'or not using a DSN  
        Set cn = en.OpenConnection(dsName:="", Prompt:=rdDriverCompleteRequired,  
Connect:="DRIVER={Doric INFO ODBC};DBQ=c:\MyDataPath\info\arc.dir", ReadOnly:=False)  
    End If  
  
    Dim qy As rdoQuery  
    Set qy = cn.CreateQuery("qy1", "select * from MyField")  
    qy.CursorType = rdOpenStatic  
    Dim rs As rdoResultset  
    Set rs = qy.OpenResultset(Type:=rdOpenStatic, LockType:=rdConcurValues)  
  
    While Not rs.EOF  
        Dim c As rdoColumn  
        Dim l As String  
        l = ""  
        For Each c In rs.rdoColumns  
            l = l & c & ", "  
        Next c  
        l = Left(l, Len(l) - 2)  
        List1.AddItem l  
        rs.MoveNext  
    Wend  
End Sub
```

Example 4 – using RDO to view and edit INFO data

Create a new VB project. Use the menu project/components to add “Microsoft Data Bound Grid Control” and “Microsoft RemoteData Control”.

Draw *RemoteData* and *DBGrid* controls on the new VB form.

Set the following property *DBGrid1.DataSource* = *MSRDC1*.

Add the following code to *Form1*.

```
Private Sub Form_Load()  
    MSRDC1.CursorDriver = rdUseOdbc  
    MSRDC1.LockType = rdConcurValues  
    If 1 Then  
        'for connection with DSN  
        MSRDC1.Connect = "DSN=testdata;pwd=;uid=;"  
    Else  
        'for connection without DSN  
        MSRDC1.Connect = "Driver={Doric INFO ODBC};DBQ=e:\testbed\data\tst.dr9"  
    End If  
    MSRDC1.SQL = "select * from table1"  
    MSRDC1.Refresh  
End Sub
```

Example 5 - Using ADO for programmatic access to INFO data

Create a new VB project. Use the menu project/references to add “Microsoft ActiveX Data Objects 2.x library”. Draw a *List* control on *Form1*. Add the following code to *Form1*.

Private Sub *Form_Load*()

```
    Dim cn As New ADODB.Connection  
    Dim Qy As New ADODB.Command
```

```
    If 1 Then
```

```
        'using a DSN
```

```
        cn.ConnectionString = "uid=;pwd=;dsn=MyDSN"
```

```
    Else
```

```
        'or not using a DSN
```

```
        cn.ConnectionString = "uid=;pwd=;driver={Doric INFO ODBC};DBQ =  
c:\MyDataPath\info\arc.dir"
```

```
    End If
```

```
    cn.ConnectionTimeout = 10
```

```
    cn.Open
```

```
    Dim rs As New ADODB.Recordset
```

```
    rs.Open "select * from MyTable", cn
```

```
    While Not rs.EOF
```

```
        Dim l As String
```

```
        Dim f As ADODB.Field
```

```
        l = ""
```

```
        For Each f In rs.Fields
```

```
            l = l & f & ", "
```

```
        Next f
```

```
        l = Left(l, Len(l) - 2)
```

```
        List1.AddItem l
```

```
        rs.MoveNext
```

```
    Wend
```

```
    rs.Close
```

```
End Sub
```

Example 6 – Using ADO to view INFO data

Create a new VB project. Use the menu project/components to add “*Microsoft ADO Data Control*” and “*Microsoft Hierarchical FlexGrid Control*”. Draw one *ADO Data Control* and one *FlexGrid Control* on Form1.

Set the property MSHFlexGrid1.DataSource = ADODC1. Add the following code to Form1.

```
Private Sub Form_Load()  
    Adodc1.ConnectionString = "dsn=MyDSN;uid=;pwd=;"  
    Adodc1.RecordSource = "select * from MyTable"  
    Adodc1.Refresh  
End Sub
```

7 Uninstall

Currently it is not necessary to Uninstall INFO~ODBC prior to loading an updated version - however it may be necessary to do so in the future, especially if there was a long period between upgrades or a major enhancement has been added.

From the Control Panel choose Add/Remove programs
Highlight Doric INFO ODBC and click Add/Remove
Confirm File Deletion (Std Microsoft questions)

From the Doric uninstall shield you will be asked 2 questions, they are aimed at the user who is uninstalling prior to installing a new version. To permanently delete INFO~ODBC choose NO.

Do you wish to retain your INFO ODBC security database?

Choose

Do you wish to retain the registration of your INFO systems as ODBC data Sources?
This will save you having to recreate them after reinstalling or upgrading INFO ODBC.

Choose

Unless you choose Cancel
the files will have been removed dependant on you YES/NO answers
INFO~ODBC capabilities will have been removed.

This section is for the System Administrator.

For non-privileged users requiring secure access, it is assumed the System Administrator will set up the ODBC Data Sources on the desired machine(s) and then set up rights to control the access by each of these users. Each user has an associated password and belongs to a user group. Access rights to databases and tables are assigned to users and groups. The access rights for a particular group can apply to all databases, or certain databases, or certain tables within certain databases. The system administrator is responsible for setting the access level for each group and user.

Depending on the ODBC product used it may be possible for the System Administrator to remove some INFO files and/or fields from the information presented to the user. Where this is not the case or additional security is required then the INFOAdmin security system may be used.

User and password information is stored in an INFO database called **sys.dr9**. This was loaded during the install into a directory of choice, C:/INFOSYS or that set by the environment variable **_INFOSYS**.

Administration can be performed on the SYS database as required with INFO products such as INFO, PC INFO, INFO³² or an ODBC client, such as Access, using the pre-set DSN - INFOAdmin.

In the latter case, where the SYS database is exposed to ODBC enabled programs, then security will also apply to that database. For this purpose user groups can be identified as having 'admin' capability, in which case they will be allowed to open the SYS database, otherwise access is denied. In ACCESS a field called RECNO is displayed - do NOT enter data into it - it is generated.

There are 6 files: USER, GROUP, DATABASE, TABLE, TRANSLATION & VARIABLES

The minimum requirements are 2 records; 1 USER record and 1 GROUP record.

The TRANSLATION file is shipped with several pre-set records – please amend or remove these as necessary.

The USER file is shipped with 2 records, the second of which is blank – to use the security system PASSWORDS this blank record MUST be removed.

- A User must belong to a Group.
- When the item “apply_to_all” = “Y” on the GROUP record then the other settings on the fields apply to ALL tables in the database.
- If “apply_to_all” = “N” then a matching DATABASE record is necessary
- gain if the apply_to_all is set to “N” on the DATABASE record then a TABLE record is required for every table (or file) in the system to set the individual rights.

USERS file or table (two pre-set record supplied)

Purpose: to associate user IDs with group IDs.

Key item	userid	15	C	2 pre-set records		
	password	15	C	admin	blank	
Data item	groupid	15	C	adminpass	blank	
Data item	first_name	20	C	admingroup	blank	
Extra items	initials	3	C	blank	blank	
(possibly for admin but not yet used)	last_name	20	C	blank	blank	while the blank record is present PASSWORDS are not requested
	notes	40	C	blank	blank	
	created	8	D	blank	blank	
	expires	8	D	blank	blank	
	unused	40	C	blank	blank	

GROUPS file or table (one pre-set record supplied)

Purpose: specifies whether or not a particular group has global access rights that affect all databases and tables. And if so, specifies what those rights are.

For this purpose groupid provides a key into this table, to read the admin, apply_to_all and possible permit_xxxx fields.

Key item	groupid	15	C	1 pre-set record	
	admin	1	C	admingroup	
Data item	apply_to_all	1	C	Y	
	permit_read	1	C	Y	
	permit_update	1	C	Y	
	permit_add	1	C	Y	
	permit_delete	1	C	Y	
	permit_ddl	1	C	Y	
	unused	40	C	blank	

Limitations: Field lengths are set for dbpath (128), tablename (32), userid & groupid (15)

The permit_xxxx fields are only valid when apply_to_all='Y'. In which case the permit_xxxx fields specify the level of access that the particular group has on **all** databases and **all** tables.

When apply_to_all = 'N' the DATABASES table should be examined to find access levels on a per-database level.

Each permit_xxxx field is either 'Y' or 'N'.

e.g. if apply_to_all = 'Y' and permit_read = 'Y' and permit_update = 'Y' then all users in this group have read and update access to all databases and all tables.

The admin field indicates whether a user group has permission to modify the SYS security database.

DATABASES file or table

no pre-set records supplied

Purpose: specifies whether or not a particular group has global access rights that affect all tables in a particular database. And if so, specifies what those rights are.

Here groupid / dbpath provides a key to retrieve the apply_to_all and possibly the permit_xxxx fields.

This table will only be used for groupid's that are listed in the GROUPS table with apply_to_all = 'N'.

Key item	groupid	15	C
	dbpath	128	C
Data item	apply_to_all	1	C
	permit_read	1	C
	permit_update	1	C
	permit_add	1	C
	permit_delete	1	C
	permit_ddl	1	C
	unused	40	C

The permit_xxxx fields are only valid when apply_to_all='Y'. In which case the permit_xxxx fields specify the level of access that the particular group has on **all** tables in the particular database.

The permit_ddl allows the user to create new tables in the database.

dbpath is a string specifying the full path and name of an INFO data directory

TABLES file or table

no pre-set records supplied

Purpose: to specify the level of access that a particular user group has on a particular database table.

groupid / dbpath / tablename provide a key into the table to look up the permit_xxxx fields.

Note that this table will only be used for groupid / dbpath combinations that are listed in the DATABASES table with apply_to_all = 'N'

Key item	groupid	15	C
	dbpath	128	C
	tablename	32	C
Data item	permit_read	1	C
	permit_update	1	C
	permit_add	1	C
	permit_delete	1	C
	unused	40	C

Levels of Access – applies to each file – GROUPS, DATABASES, TABLES

Field	Access rights	Value	SQL examples
permit_read	read data from file	Y / N	select * from tablename
permit_update	amend data in file	Y / N	update thing set field='data' where otherfield=xxxxx';
permit_add	add data to file	Y / N	insert into tablename (field1, field2) values ('field1data', 'field2data');
permit_delete	remove data from file	Y / N	delete from tablename where field = 'xxxxx';
permit_DDL	create new files in existing database and delete files.	Y / N	create table newtable1 (newfield1 char(40), newfield2 Int) or drop table newtable1

TRANSLATION file or table

several pre-set record supplied

Purpose: to allow the user control over the representation of “special characters” when used by SQL. These sets of translation values may be applied to a particular group. Where the groupid is blank the translation applies to all groups.

Key item	groupid	15	C
Data item	original	16	C
	replacement	32	C
	flags	4	B

example of supplied pre-set record	
blank	
'!'"£\$%^&*()-+=[]{};':#@~\.,/<>?	
_	
4	

groupid = the groupid this is to apply to or blank for all groups.

original = original string or character

replacement = replacement

flags = indicates type of replacement

0 – any occurrence original string - includes multiple occurrences in an item

1 – only when the whole table or column item is the original string

2 – table or column item starting with original string

3 – strings ends with original string

4 – any one of the characters in original string

5 – special replacement of RECNO

If the above flag is

+100 apply translation to column (field) names only

+200 apply translation to table (file) names only

To change KEY into KEY_ for column or field items only and where KEY is the complete column or field name and for all groups

Groupid	original	replacement	flags
space	KEY	KEY_	101

SPECIAL note – This solves the problem where SQL may automatically change a # (pound sign or hash) to _ (underscore) – the following allows # to be retained.

To make sure any column (field) ending in #, such as CENSUS#, retains it - include the following

Groupid	original	replacement	flags
space	#	#	103

VARIABLES file or table

no pre-set record supplied

Purpose: specifies the value by groupid of environmental variables.

Key item	groupid	15	C
Data item	varname	16	C
	varvalue	32	C

varname = variable name

varvalue = value of replacement

If environment variable have been used in “externalled” INFO files –flat (XX) or ISAM (CI) this will allow different groups to have different values in those environment variables.