Installing BDE Applications &

Network Installation of Delphi

By Dave Robinson
Amber Computer Systems Inc.
Surrey, BC Canada
(604) 599-9279
FAX (604) 599-9261

Disclaimer:

You may use the information contained herein freely. It is your responsibility to ensure that you understand the implications of the suggestions herein. If you destroy any data, or hardware by using this information it is your responsibility.

Loss of data, revenue or availability of your computers and servers is your problem. This article is not a substitute for research and work on your part!

Amber Computer Systems Inc. 14197 74 Ave., Surrey, BC, Canada
Phone (604) 599-9279 • FAX (604) 599-9261
EMAIL ambersys@istar.ca or sales@acsi.bc.ca
WEB Page http://www.acsi.bc.ca or http://home.istar.ca/~ambersys/

Revised, December 17, 1997

Table of Contents

Amber Computer Systems Inc. 14197 74 Ave., Surrey, BC, Canada
Phone (604) 599-9279 • FAX (604) 599-9261
EMAIL ambersys@istar.ca or sales@acsi.bc.ca
WEB Page http://www.acsi.bc.ca or http://home.istar.ca/~ambersys/

Revised, December 17, 1997

Amber Computer Systems Inc. 14197 74 Ave., Surrey, BC, Canada
Phone (604) 599-9279 • FAX (604) 599-9261
EMAIL ambersys@istar.ca or sales@acsi.bc.ca
WEB Page http://www.acsi.bc.ca or http://home.istar.ca/~ambersys/

Revised, December 17, 1997

Delphi Installation Notes & Hints for Networks

Network Installation

Because so many styles of networks now exist, the installation is not specific to any one type of network. Manual intervention in most install procedures will be required. These notes are not exhaustive, but designed as a memory aid or a partial checklist for a reasonably skilled and experienced network installer. For example five different client types exist - and are in common use - for Novell alone, and each has many versions.

Novell Network Installation

On a Novell Network Installation you will have to enlist the services of your network administrator to create the necessary groups, and assign them the required access rights. If you are the network administrator, and you are facing your first major installation of a Paradox or Delphi application on a large network, you will probably consider a career change shortly.

You should first install the programs and data files, and then set up the group access rights. In Windows NT or Novell you use the administrator privileges to create a group - and perhaps even the directories where the application and data files will reside. Make sure that you give full read write access to all data locations. and the Netfile location.

Novell Support Page

The Novell WEB page is at http://support.novell.com/ Be sure to check for the latest patches & upgrades before you assume you have an installation or programming problem.

Microsoft Support Page

The Microsoft Support WEB page is at http://support.microsoft.com/ Be sure to check for the latest patches & upgrades before you assume you have an installation or programming problem. There have been several Kernel and Winsock updates, as well as updates to the password mechanism. Note that some upgrades are for OSR2 (Release B) only, and some are for release A (OSR1) only.

Amber Computer Systems Inc. 14197 74 Ave., Surrey, BC, Canada
Phone (604) 599-9279 • FAX (604) 599-9261
EMAIL ambersys@istar.ca or sales@acsi.bc.ca
WEB Page http://www.acsi.bc.ca or http://home.istar.ca/~ambersys/

Revised, December 17, 1997

Checklist

Access Rights

- Obtain the Supervisor Password or the equivalent rights required to install your application.
  You will need to:
  - create directories,
  - add programs and data
  - and grant access rights

Create Directories

Create the directory structures you need on the volumes available to you on the network. If your application is large and or complex application with many DLLs you can benefit from load balancing by installing the application on one volume, and the data on another volume. You may also benefit from splitting the data tables across volumes.

Create User Groups

The best way to control security is set up user groups (NWADMIN or SYSADMIN). Assign access to the program directory as RF (Read only plus Filescan).
Give full access to any directory where data will be stored. You must create lock (LCK) files where you read or write data files. (See Clever Trick Below.)

Clever Trick

We have recently become aware of a clever trick whereby a lockfile is created, and then copied to a CDROM disk. This allows you to access a DB file through the database engine. We believe the same trick should work on a Network, where you wish to keep a group of files as read only. You may wish to try creating a directory, copying in the data and then opening a file with the BDE. Then - salvage the LCK file. Now you can try accessing the file through a login account which has only read access to the directory. Borland has published a Tecnichal Information (TI) note regarding this method. Also, I believe you will find an lck file on their CDROM which can be used for this purpose.

Net File Directory

Users of a BDE application must have Read/Write access to a net file directory. Each user must be INDIVIDUALLY configured to access the Netfile through the BDECFG program. (Unless you activate a common cfg file on the network.) You can also change this variable programmtically. Look up the Tsession component for more information.

CLIENT DRIVERS

NETX & IPX Drivers

If you are using the NETX & IPX drivers, we recommend that you upgrade your system to one of the Netware Client Drivers. These drivers may work with Windows, but give an unacceptable level of problems. Novell has ceased support of these drivers.

ODI Driver Series.

The ODI drivers are acceptable, but are outdated and support from Novell is no longer available. Get your Novell dealer or support organization to install one of the new DOS Client driver sets. The ODI drivers are recognizable because it takes the following form in your Autoexec.bat file:

```
@Set echo off
comspec=c:\command.com
path=c:\dos;c:\windows;c:\Application
etc….
etc…

cd\net
lsl
eproodi (This will be different, and match YOUR network Card)
ipxodi
netx
cd\

F:
Login
etc….
etc…..
```

The ODI drivers use a Shell.cfg or a Net.cfg file usually in the same directory. If you do use them see the section on the Net.cfg file for a sample setup to improve network response times.

VLM Drivers

The VLM drivers are acceptable, but are superseded by the DOS client system, support from Novell is still available, but will likely cease soon. Get your Novell dealer or support organization to install one of the new DOS Client driver sets. The VLM drivers are recognizable because it takes the following form in your Autoexec.bat file:

```
@Set echo off
comspec=c:\command.com
path=c:\dos;c:\windows;c:\Application
etc….
etc…

cd\net
lsl
eproodi (This will be different, and match YOUR network Card)
ipxodi
VLM
cd\

F:
Login
etc….
etc…..
```

The VLM drivers use a Net.cfg file - usually in the same directory. If you do use them see the section on the Net.cfg file for a sample setup to improve network response times. Note that you must install the WINUP9 file from Novell to get proper behaviour from your Windows 3.1x system. If you do not install the WINUP9 upgrade, you will get a windows message on startup that "All Network Functions will be disabled". Your Novell dealer or support organization can do all the upgrades. If you need detailed information you may contact Novell Support Directly.

Many people who use these drivers complain about long initial delays when starting up Delphi 2.x and BDE 32 based applications. The first file make take up to 12 seconds to open, but all subsequent file accesses are faster.

Windows 95 Drivers for Netware and Netware Directory Services (NDS)

The Microsoft Windows 95 drivers are acceptable, but, if you are running Netware 4.1x or higher on your server you should install the NDS upgrade from Microsoft. It is available from the http://www.microsoft.com/ site on the Internet under the free software and/or upgrades section. Get your Novell dealer or support organization to install the upgrade if you are not comfortable doing the upgrade. At the same time you should install the Service Pack 1 upgrade, and the subsequent upgrades provided by Microsoft for improving the Kernel, and the Password functions.

The Microsoft drivers do not seem to have any tunable parameters to improve network response times. However, these drivers do seem to be significantly faster than Novell drivers for the initial file open - particularly with the 32 bit BDE.

The NDS upgrade is not required for Netware 3.12 or below.

Netware Client 32 Drivers

The Netware drivers can be downloaded through Netwire on Compuserve, or the Novell site on the Web at http://support.novell.com/

There are many tunable parameters for the adventuresome. We recommend that you read some of the application notes explaining how the adventuresome can recover from their adventures. See http://support.novell.com/ for the required notes.

Our experience has shown that the Microsoft drivers are faster at the initial opening of a *db table. We have no idea why the difference.

The Novell client drivers do not interfere with TCP/IP or Dial up networking - as far as we can see.

Amber Computer Systems Inc. 14197 74 Ave., Surrey, BC, Canada
Phone (604) 599-9279 • FAX (604) 599-9261
EMAIL ambersys@istar.ca or sales@acsi.bc.ca
WEB Page http://www.acsi.bc.ca or http://home.istar.ca/~ambersys/

Revised, December 17, 1997

SERVER SETUP

Typical Novell Setup

Any installer of the application must have the Supervisor password, or Supervisory Equivalence since you will be setting up user groups, and creating new directories - usually at the root level of the network.

We will assume Netware 3.12 or 4.11 (Intranetware) running either the Netware Client, the Intranetware Client, or the Win95 with the Novell 32 bit client, or the Microsoft Netware client with the NDS upgrade if you are running Netware 4.1x. All of these setups are similar, and are the best situation for a windows data base program.

We will assume that we have one server with three volumes: Sys:, Apps: and Data:
The system volume will hold the Netware, and related system volumes, print queues and so on.

Three new groups will be created - unless you already have Paradox, Quattro Pro, Word Perfect 6.x or later or Delphi installed.

We normally put the Net file in the F:\net (That is the: Servername//sys:\net) directory. We then make a group called PardoxNet (for example), and assign it full rights except for supervisory and access control. If we also have Paradox or Quattro Pro on the Network, we make sure that all members of these groups have access to the net file. Do not make the mistake of doing this assignment through a Paradox or Quattro Group or a Delphi Application Users Group because you may later have any number of combinations. It is double the work but it is the "right" way.

Once the Application program is installed, make a Group for the application (Say MyApp). Include the program directories (e.g. apps:progs\MyApp\) in the access rights list and grant at least read and file scan rights to the program directories. Make a second group (Say MyData) for the data directories and assign full rights to data directories (e.g. data:Mydata\) - less supervisory and access control. Paradox data file format requires full access to a directory which contains any data (*.db) file format since it will make a lock file (*.lck) in the directory each time the data is accessed.

Private Directory

Create a Private directory on each local hard drive of each work station. This will prevent problems such as lock file grown too large, and ReportSmith problems. See the Problem Avoidance Section for more details.

Long Name Support

The Novell system requires you to load os2.nam or long.nam for long name support. You will find directions on the Novell Web Site. When you use Win95, you will require the BDE 3.52 upgrade for long file name support. It is available at the Borland Site. http://www.borland.com/.

Windows for Workgroups Installation

The Windows for Work groups setup requires designating one workstation in the peer to peer network as a "server", and optimizing the disk access for multiple users.

Note that more than 16MByte of RAM **may** cause difficulty with display drivers and SCSI disk drivers. There are patches for the disk drivers now if you have Adaptec or Bus Logic for example, but our experience shows that the display driver problems may not be resolvable. For example we could not resolve ATI driver issues until we installed WIN95 on some Autocad systems with 32Mbyte of memory.

Data Loss problems will occur in Windows for Work groups if you subsequently reboot or reset the computer after a lock up or hang situation, and you are using 32 bit disk or file access. We recommend that you use only Smartdrive, and not the 32 bit disk and file access. Set Smartdrive for a ** short ** flush time, i.e. 10 seconds or less. THIS IS A BUG IN Microsoft WINDOWS VCACHE function. This bug occurs in Word Processors, databases, PIMS etc. A similar problem has been discovered in Windows NT Servers.

On the "Server" Machine make a directory to contain the net file, and then grant full access to the drive - from the C:\ (or any other available local drive) level. The net file locking mechanism will only work if access to the root is granted. The server must have VSHARE loaded through the system.ini file.

Note that the Server drive will have an IDAPI file which places the net file in drive C:\, and the Workstations may assign the server to any available drive mapping (letter). We recommend that at the Workstations, you use the "F:\" mapping for the server drive. This will maintain consistency with any subsequent Novell install and make changeover easier. The drive mappings are assigned through the File Manager.

The BDE Engine must be configured for LOCAL SHARE=TRUE if you must use the server station as a workstation as well. **This is not recommended under any circumstances.**

Windows NT Installation

The Server may be a Windows NT Workstation unit, or a Windows NT Server unit. The installation is similar to the Workgroups installation. Again, the Server must have a different IDAPI or BDE config file since it sees the file locations as drive C:\ and the Workstations see the drive as "F:\" - or whatever assignment you use.

Like any network server, we recommend that the server have a high speed, high capacity (2 + GigaByte) drive and at least 64Mbyte of RAM (Memory) as a minimum configuration. You don't need that much room for most applications, but the high speed drives seem to be high capacity drives these days. Also, if you are choosing the drive for high speed, and money is no object, get A SCSI interface drive. They are five to 10 times faster than most consumer grade IDE or EIDE hard drives - a highly desirable property in a network server disk system. Unlike Windows for Workgroups the extra memory is beneficial, and increases functionality.

Windows NT has much of the same functionality as Netware 3.11. It can create user groups and access rights etc. Again you may wish to try many of the same optimizations that work so well with Novell. You can add memory, split the application between drives, get faster network cards etc.

Make sure you read the Windows NT 4.0 note on “Oplocks” and donload the notes from Microsoft. Also. Microsoft may have released a new Redirector by the time you read these notes, so you should track that down and install it on your server. The new redirector should solve many of the file and database integrity (Index out of Date) problems.

Windows 95 Network Server

Like any network server, we recommend that the server have a high speed, high capacity (1GigaByte) drive and at least 32Mbyte of RAM (Memory). You don't need that much room for most applications, but the high speed drives seem to be high capacity drives these days. Also, if you are choosing the drive for high speed, and money is no object, get A SCSI interface drive. They are five to 10 times faster than most consumer grade IDE or EIDE hard drives - a highly desirable property in a network server disk system. Unlike Windows for Workgroups the extra memory is beneficial, and increases functionality.

OSR2 – Windows 95 Release B

Also, you should be aware that Windows 95 has an OSR2 or a "B" release. It has a 32 bit FAT systems and can allocate file space in smaller blocks. Drive space is therefore allocated more efficiently than in the 16 bit system, and the drive space is consumed far less quickly. So, if possible start with OSR2 or backup, fdisk your drive again, and re-install your Windows 95 software.

Setting up the Windows 95 Server Functions

The Windows 95 Network Server function is set up via the Properties panel. You access the panel by "Right Clicking" on the desktop item on the Upper Left of the desktop. It is called My Computer Until you rename it. If your computer does not have a distinctive name right click the icon, and choose rename. We recommend that you name the computer after the Job function. (You do want to get promoted don't you? And you don't want the File Clerks computer to have your name forever - do you?)

Now right click the Computer icon in the Upper Leftmost corner again and choose Properties, then choose the File System Button. Then, change the Typical role of the machine to Network Server instead of Desktop Machine. Then click OK etc. until you leave the properties box. At this time you should also continue on to the troubleshooting tab and then disable the "New style locking semantics." This will save you many damaged files, and "Index out of Date Problems".

Windows 95 File Sharing

Next we have to arrange some file sharing. We will be granting Share level access since, again, like Workgroups it is required to grant access to the entire drive (root level access). This access is granted by choosing the Start, Settings, Control Panel in sequence, and then using (double click on) the Network Icon to access the Network Configuration. Next choose access control, and select share Level access. You may also use the Identification Panel to change your computer Name and change or create a work group. All machines using your system as a server will have to belong to your workgroup. Also, check that when you click on the File and Print sharing button, that you are granting file access to other people. You may also want (or not want to) share any printers attached to the file server.

Finally, we will tell our system which drive we wish to share, and give full read/write access. To do this run the Explorer by right clicking on your Computer Icon, and choosing explore. When Explorer is showing the list of drives in the left panel, right click the mouse on the C:\ drive, and choose Sharing. You will be asked to Name the drive via the share name - you may call the drive anything you wish. We recommend common sense and decorum in the choosing of the name no matter how frustrating this experience has been so far. You may also choose to use a password for Read/Write or read access. Anyone using you system will require Full read/write access to even look at a table. (For more information on "What's in a name?" see Romeo and Juliet by William Shakespeare where Juliette asks the question you may be asking "What's in a name?" If you can't think of anything else name your drive after your cat. After all, our requirements are a little less stringent than Julliete's' were, and no one will take their life if your drive is named "Spot".

Now - wasn't that easy? Now you're ready for Workstations!

Amber Computer Systems Inc. 14197 74 Ave., Surrey, BC, Canada
Phone (604) 599-9279 • FAX (604) 599-9261
EMAIL ambersys@istar.ca or sales@acsi.bc.ca
WEB Page http://www.acsi.bc.ca or http://home.istar.ca/~ambersys/

Revised, December 17, 1997

Windows NT 4.x

Windows NT 4.x Workstation & Server installation is handled very much like a Windows 95 server installation - from the point of view of BDE applications. The user group setup is much more sophisticated - but the common interface does make things easier to find if you have gotten used to Windows 95.

Known Problems with NT 4.0

Windows NT 4.0 has a problem with "Cache Coherency" - in other words different users have a different view of what is in the cache. This is not a BDE/Borland & Windows bug. This problem affects any and all applications. There is a fix for the problem, but it involves disabling the caching for files, and file handles. The loweing of network efficiency may be a real problem for some Network administrators. This fix was submitted by David Gecawich & verified by Alex Glassey of Careware.

For further information, got to the Microsoft site (http://www.microsoft.com/) and look in the Windows NT knowledge base. If you search on "Oplocks" it should return at least the following article: Q124916.

"OpLocks" refers to "Opportunistic Locking". The theory is that most data accesses will not really need to lock the file due to an impending write. I believe the premise is a little shaky for most PC database applications.

Make sure you read the Windows NT 4.0 note on "Oplocks" and donload the notes from Microsoft. Also. Microsoft may have released a new Redirector by the time you read these notes, so you should track that down and install it on your server. The new redirector should solve many of the file and database integrity (Index out of Date) problems.

Windows NT 4.0 Server Cache Coherency Problem

Frequent (daily/hourly) index file corruption
"Dirty" data written to tables

ENVIRONMENT
NT4.0 Server, Windows 95 workstations (8), Delphi 1.x 16-hit application, BDE 2.52, Paradox 5.0 tables

CAUSE
Delayed writes at the network operating system level

SOLUTION
Make the following two registry changes to the NT 4.O server:

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentcontrolSet\Services\LanmanServer\Parameters]
"EnableOplocks"=dword:00000000
"CachedOpenLimit"=dword:00000000

Amber Computer Systems Inc. 14197 74 Ave., Surrey, BC, Canada
Phone (604) 599-9279 • FAX (604) 599-9261
EMAIL ambersys@istar.ca or sales@acsi.bc.ca
WEB Page http://www.acsi.bc.ca or http://home.istar.ca/~ambersys/

Revised, December 17, 1997

Windows 95 Workstations - on a Windows 95 Network

Like any workstation, we recommend that you have a high speed, high capacity (1GigaByte) drive and at least 16Mbyte of RAM (Memory) - 32Mbyte is preferred. More memory and better disk drives are always good, but most applications will not likely receive any more benefit once you have at least 24Mbytes of RAM memory. In other words, 8Mbyte is slow, 16Mbyte is fine, 24Mbyte is great, and 32Mbyte of RAM is great if your are running multiple applications. You don't need that much disk room for most applications, but the high speed drives seem to be high capacity drives these days. Unlike Windows for Workgroups the extra memory and drive space is beneficial, and increases functionality. For more information on processor and Windows 95 optimization, see the ICOMP specifications by Intel.

Now that your network installer has hooked your computer up to your server, and made you part of the Work group, you can run the Explorer, double Click on the Network Neighborhood and there's the server named "Spot" no problem - just rename your cat, and then rename your computer - or name your computer after your budgie.

To permanently connect your computer to the network server, right click on your computer icon, choose map a network drive, choose a letter (F: is recommended) and then map it to the desired drive on the server - the Share Name chosen by the Server operator will be visible. Make sure the Reconnect at Logon button is checked, type in the password if required, and you are in business.

For maximum speed of an Application on a network, load the Application software, and the Borland BDE on the local hard drive, and put the Netfile and the data on the network server.

The last step will be to run BDECFG and assign the Netfile location to the server - usually the location is \\YourServer\ShareName. Where ***YourServer*** means the name you gave the Server PC, and ShareName means the name you gave the shared drive. Now you can - simultaneously with other users -access the data on the server with out “Share” errors..

Index out of Date Problems

Now right click the Computer icon in the Upper Leftmost corner again and choose Properties, then choose the File System Button. Then, change the Typical role of the machine to Network Server or Desktop Machine as appropriate. At this time you should also continue on to the Troubleshooting tab and then disable the “New style locking semantics.” This will save you many damaged files. Then click OK etc. until you leave the properties box.

Amber Computer Systems Inc. 14197 74 Ave., Surrey, BC, Canada
Phone (604) 599-9279 • FAX (604) 599-9261
EMAIL ambersys@istar.ca or sales@acsi.bc.ca
WEB Page http://www.acsi.bc.ca or http://home.istar.ca/~ambersys/

Revised, December 17, 1997

Sample Install:

I presume that you are on a Windows style network. Use the Universal Naming Convention for the Server address. eg. (I think)

\\mycomputer\sharename\directory\subdirectory etc.

Computer name is: tristan

You shared the drive as: MyDriveC

The Net file is in: C:\netdir - on your computer

Then the netfile will be in: \\tristan\MyDriveC\netdir

For a Win95 Server and Client:.

1) Give each user a separate install of the BDE i.e. on their C drive.
2) Give full access to the root of the SHARED C Drive - on your Windows server.
3) Assign the net directory using the UNC as described above.
4) Set Local share = true in the BDE of the Server
5) Test the two computers on the same xyz.db file for simultaneous read & write using the data base desktop.
6) If you have problems with a Win95 server, set the new style locking conventions = off. (Right click the Computer in upper left - then: Properties, Performance , File System, Trouble Shooting, then check "Disable new file sharing and locking semantics".)
7) You may want to put the net file on a separate drive - since you will now have a system with no security for the C drive.
8) If you figure out how to set up the net file without giving full root access to the netfile drive - let US know how.

Also:

1) Make sure the EXE and data files are not in the same directory - else you will get the lockfile grown too large problem.

There wasn't that simple?

Amber Computer Systems Inc. 14197 74 Ave., Surrey, BC, Canada
Phone (604) 599-9279 • FAX (604) 599-9261
EMAIL ambersys@istar.ca or sales@acsi.bc.ca
WEB Page http://www.acsi.bc.ca or http://home.istar.ca/~ambersys/

Revised, December 17, 1997

BDE Programming

Helpful Hints

Flushing the cache

dbiSaveChanges(file handle) This function will immediately write the current record to disk (or the Network Redirector). Use it whenever you are making a critical update. (Aren't they all critical?) This will help prevent "Index out of Date Errors". We use the function in almost all record posts – however – it will not prevent all the problems you might have. Network failures, disk failures memory glitches etc. can still prevent the successful updating of data and index tables.

Many people give the advice that "Closing your Form" will flush the cache. What if you have the form open for long periods of time? What if a power failure occurs. Using dbiSaveChanges() on critical posts will prevent problems.

The following is taken directly from the Borland BDE help File.

Delphi syntax and Usage of dbiSaveChanges

function DbiSaveChanges (hCursor: hDBICur): DBIResult stdcall;

Description
DbiSaveChanges forces all updated records associated with hCursor to disk.

Parameters
hCursor Type: hDBICur (Input)
Specifies the cursor handle.

Usage
If the table associated with hCursor is a temporary table (created with DbiCreateTempTable), DbiSaveChanges saves all buffered changes to disk and makes the table permanent. This table will not be removed when the cursor is closed.
SQL: This function is not supported with SQL tables.

DbiResult return values

DBIERR_NONE	All changes have been saved successfully.
DBIERR_INVALIDHNDL	The specified cursor is invalid or NULL.
DBIERR_NODISKSPACE	The changes could not be saved because there is no disk space available.
DBIERR_NOTSUPPORTED	This function is not supported for SQL tables.

See also

Setting the Private Directory

The Following is taken directly from the BDE Help File. The importance of controlling the Private directory can not be over emphasized. Setting the private directory allows your temporary tables to be placed in a

directory of your choosing. This will prevent Lock File Grown too large problems as well as a series of rather strange ReportSmith problems.

Delphi syntax and Usage
function DbiSetPrivateDir (pszDir: PChar): DbiResult stdcall;

Description
DbiSetPrivateDir sets the private directory for the current session.

Parameters
pszDir Type: pCHAR (Input)
Pointer to the full path name of the new private directory. Optional. If NULL, then the private directory is reset to the default startup directory.

Usage
Although DbiSetPrivateDir is specific to Paradox tables, it has one important use for all drivers: all temporary or auxiliary files are created in this directory by default. If no private directory is specified, then all temporary or auxiliary tables are created in the default startup directory. Examples of functions that may create temporary or auxiliary tables are DbiDoRestructure and DbiBatchMove.
If you want the private directory to be the same as the default working directory, you must explicitly set first the private directory, then set the default directory by using DbiSetDirectory.

Prerequisites

The directory must be available for exclusive access. No other BDE users can access the private directory.

DbiResult return values

DBIERR_NONE The private directory was successfully set.
DBIERR_DIRBUSY The specified directory is currently in use.

Getting a User List

Many people want to be able to suply a list of users that are working with their application. I suggest that you explore the use of dbiOpenUserList in the BDE Help. The following example – taken right from the BDE help should be able to guide you through adding this function to your program.

```
Procedure fDbiOpenUserList(UserList: TStringList);
var
  TmpCursor: hDbiCur;
  rslt: dbiResult;
  UsrDesc: USERDesc;
begin
  Check(DbiOpenUserList(TmpCursor));
  repeat
    rslt:= DbiGetNextRecord(TmpCursor, dbiNOLOCK, @UsrDesc, nil);
    if (rslt <> DBIERR_EOF) then
    begin
      UserList.Add('User name: ' + UsrDesc.szUserName);
      UserList.Add('Net Session: ' + inttostr(UsrDesc.iNetSession));
      UserList.Add('Product Class: ' + inttostr(UsrDesc.iProductClass));

    end;
  until rslt <> DBIERR_NONE;
  Check(DbiCloseCursor(TmpCursor));
end;
```

Getting a Lock List

You can get a list of the current locks on a table by exploring the dbiOpenLockList Function. Again, an

Coexisting with Other Applications

Setting the various parameters in the win.ini file – even Windows 95 has this file - can save a lot of conflicts with other applications. Particularly ODBC compliant applications that hide the location of the NET file in the DSN setup created by the ODBC manager. Most of the settings below are self explanatory, or further information can be found in the Help files.

Paradox Engine Settings for Win.ini File

```
[IDAPI]
DLLPATH=C:\IDAPI
CONFIGFILE01=C:\CFG\mycfg.CFG

[Borland Language Drivers]
LDPath=C:\IDAPI\LANGDRV

[BWCC]
BitmapLibrary=BWCC.DLL

[Interbase]
RootDirectory=C:\IBLOCAL
```

Rem Note that the Engine Section is for applications that use the OLD style Paradox engine, or perhaps the ODBC drivers Note that the NET file must be set to agree with your net file for your application.

```
[Paradox Engine]
UserName=PxEngine
NetNamePath=C:\              ; Put the correct directory here so it can communicate with your program
MaxTables=64
RecBufs=64
MaxLocks=64
MaxFiles=64
SwapSize=64

[DDE Servers]
DBD=C:\DBD\DBD

[DBD]
WORKDIR=C:\data\myprog\SCHEDULE
PRIVDIR=C:\DBD\DBDPRIV
```

Appendix A

Sample Net.cfg File

```
NETWARE DOS REQUESTER
        FIRST NETWORK DRIVE=F
          force first network drive = on        ; ensures you return to drive F: when you logout - simplifies
batch files etc.
        USE DEFAULTS=OFF
        VLM=CONN.VLM
        VLM=IPXNCP.VLM
        VLM=TRAN.VLM
        VLM=SECURITY.VLM
        VLM=NDS.VLM             ; Netware 4.xx access,  BIND.VLM for Netware 3.xx
        VLM=NWP.VLM
        VLM=FIO.VLM
        VLM=PRINT.VLM
        VLM=GENERAL.VLM
        VLM=REDIR.VLM
        VLM=NETX.VLM            ; Netx simulator
        VLM=AUTO.VLM
        VLM=NMR.VLM

      NETWARE PROTOCOL=NDS; For Netware 4.0, BIND if Netware 3.1x

        CHECKSUM=0
        Signature Level = 0             ; Turns off security, increases speed
        Long Machine Type = CLONER      ; DOS in f:\public\CLONER\MSDOS\V6.22 - for e.g.
        Short Machine Type = IBM    ;  Tells Netware which version of utilities to run
        file handles = 72                       ; These are Network File Handles Only
          FILE CACHE BUFFERS = 24       ; To speed up network file access
        LOCAL PRINTERS = 0              ; Ctrl-Prtsc will print to  Network Printer if no local printer
        NETWORK PRINTERS = 5
        SEARCH MODE=5           ; Sets search methodology - see netware manuals
        sign 386 mode = 1
        show dots = on                  ; Allows upward navigation of directories in Windows
        EOJ=OFF

        Auto Reconnect=on
        Bind Reconnect=on
        Auto Large Table = off

        LOAD low FIO = ON       ; These load low commands
        LOAD low REDIR = ON             ; put the driver in low memory and speed  up
        LOAD low NETX = ON              ; database access considerably
```

```
        Preferred Server = acsi410          ; Choose Login server
        Preferred Tree   amber              ; For Netware 4.xx - set NDS Tree


TRANSPORT PROVIDER IPX


Link Driver Eproodi
        Port 210
        Frame ETHERNET_802.2                ; Only 802.3 is installed on many networks
        Frame ETHERNET_II                   ; Required for TCP/IP
        Protocol IPX E0 ETHERNET_802.2 ; Only required in Multiprotocol network


Link Support
        Buffers 8 1500
        MemPool 4096

; The following TCP/IP section is required only if you are running
; LAN WorkPlace and TCP/IP etc. and need UNIX access

Protocol TCPIP
      Bind EPROODI #0 ETHERNET_II PresidentsPC
        PATH SCRIPT     C:\NET\SCRIPT
        PATH PROFILE    C:\NET\PROFILE
        PATH LWP_CFG    C:\NET\HSTACC
        PATH TCP_CFG    C:\NET\TCP
          ip_address      128.222.4.120
        ip_netmask      255.255.0.0
```

Windows 3.1x

If you have a Novell network, make sure that you get the latest Windows upgrades from Novell. The actual file updates depend on the version of Windows, Workgroups 3.11 or Windows 3.10, **and** the version and style of Novell drivers. The latest version is WINUP9, and DOSUP9. These files update the Windows Netware and print drivers.

Config.sys & Autoexec.bat Suggestions

After setting up the config.bat and the Autoexec.bat to your satisfaction be sure to run memaker or a memory manager of your choice. At least 525 - 560K of memory should be available for trouble free operation of Windows and most applications, again this may vary with your particular circumstances and applications..

Config.sys
(Windows 3.1x)

Include a line similar to:
Shell=c:\command.com c:\ /P /E:1536

This allows more environment space to hold SET and PATH parameters etc. as well as ensuring that the command.com can always be found.

Autoexec.bat

Loading the Novell network drivers is easiest if you do something like this:

…
…
cd\nwclient
lsl
eproodi
ipxodi
REM TCPIP ; would go here
vlm
cd\
f:
login

This ensures that the net.cfg file is found

Windows 95

You should install the Microsoft Service Pack 1, and the subsequent Kernel, and file IO updates, as well as the Password security updates. Check http://www.microsoft.com/ on the Internet for file updates, or the Compuserve forum. There is also an update to the Microsoft Exchange which renames it to Windows Messaging.

Windows NT 3.51 & 4.0

Ensure that you are using Windows NT 3.51, with Service Pack 4 installed. You may also choose to use the Windows Client 32 available from Novell at http://novell.support.com/

Windows NT4.0

Has now been tested - but only in a cursory manner. See the cautions in the previous section.

Novell Netware 4.1x

Novell Netware is now at Patch level 9. There are also patches for the Library functions, and the Netware Directory System (NDS).

These patches also improve the Remote printing, and tape backup since they update the Netware SPX functions as well.

Netware 3.12

Netware 3.12 also has patches for the server. These should be installed as well since there are updates to the library and the file handling.

Appendix B

Trial Versions are available on Compuserve, and on the WEB at: The Temple of Delphi, The Delphi Super Page, & The Pascal Programmers Page. Our own site is http://www.acsi.bc.ca/ or http://home.istar.ca/~ambersys/

Products Available from Amber Computer Systems Inc.

TQBE32

QBE32.zip (Oct 27, 1996) 17KByte
The QBE32 component is designed to add full compatibility with the QBE files created by the desktop. No more Cut & Paste like the old Delphi 1.0 version! QBE32 also supports full parameter passing, and is fully compatible with the 16 bit version - saving you lots of time and money in upgrading your programs to Delphi 2.0.

Protect 32

TProt32.zip (Dec 23, 1996) (144 KByte) 32-bit Evaluation version (version 2.01)
TProtect Component Description
The TProtect component "protects" a Paradox data table by responding to database exceptions generated when opening the table or changing the active index. If TProtect is triggered, it tests the table and if any damage is found, TProtect automatically repairs the table.

TProtect uses a combination of internal procedures and calls to the **Borland TUtility DLL** to test and repair the tables. TProtect can use a table structure backup (an empty data table with identical structure to the "protected" table) to maximize testing and repair capabilities. In addition to testing for data corruption, TProtect compares the structures of the two tables to identify differences (e.g. missing index) . If damage is found, TProtect can automatically borrow the table and index structure from the backup table during the repair process. In this way, even very serious table damage can usually be recovered without manual user intervention. TProtect handles table repair better than components that use the TUtility DLL alone (for example, TProtect can recover damage .VAL files).

Protect 16

TProt16.zip (Dec 23, 1996) (123 KByte) 16-bit Evaluation version (version 2.01)
The TProtect component "protects" a Paradox data table by responding to database exceptions generated when opening the table or changing the active index. If TProtect is triggered, it tests the table and if any damage is found, TProtect automatically repairs the table. TProtect uses a combination of internal procedures and calls to the Borland TUtility DLL to test and repair the tables. TProtect can use a table structure backup (an empty data table with identical structure to the "protected" table) to maximize testing and repair capabilities. In addition to testing for data corruption, TProtect compares the structures of the two tables to identify differences (e.g. missing index) . If damage is found, TProtect can automatically borrow the table and index structure from the backup table during the repair process. In this way, even very serious table damage can usually be recovered without manual user intervention. TProtect handles table repair better than components that use the TUtility DLL alone (for example, TProtect can recover damaged .VAL files).

Trebuilder 16

TREB16.zip (Feb 3, 1997) (140 KByte) 16-bit Evaluation version (version 2.10)

TRebuild is designed to TEST and REPAIR all tables in an alias, or if your prefer, a pre-set list of tables in an alias. TRebuild uses a combination of internal procedures and calls to the Borland TUtility DLL to test and repair the tables. TRebuild can use a table structure repository (a directory full of empty data tables with identical structures to your working tables) to maximize testing and repair capabilities. In addition to testing for data corruption, TRebuild compares the structures of the two tables to identify differences (e.g. missing index) . If damage is found, TRebuild can automatically borrow the table and index structure from the backup table during the repair process. In this way, even very serious table damage can usually be recovered without manual user intervention. TRebuild handles tables better than components that use the TUtility DLL alone (for example, TRebuild can recover damaged .VAL files).

Trebuilder 32

TREB32.zip (Feb 3, 1997) (158 KByte) 32-bit Evaluation version (version 2.10)

TRebuild is designed to TEST and REPAIR all tables in an alias, or if you prefer, a pre-set list of tables in an alias. TRebuild uses a combination of internal procedures and calls to the Borland TUtility DLL to test and repair the tables. TRebuild can use a table structure repository (a directory full of empty data tables with identical structures to your working tables) to maximize testing and repair capabilities. In addition to testing for data corruption, TRebuild compares the structures of the two tables to identify differences (e.g. missing index) . If damage is found, TRebuild can automatically borrow the table and index structure from the backup table during the repair process. In this way, even very serious table damage can usually be recovered without manual user intervention. TRebuild handles tables better than components that use the TUtility DLL alone (for example, TRebuild can recover damaged .VAL files).

TCOMM32

TCOMM_32.zip 48K December 21, 1996
The TCOMM_32 component (Version 1.3) is designed to add Simple COM port functionality. It is suitable for passing strings to an RS232 Controller and receiving the responses. Ideal for weigh scale controllers, Bar code Readers etc. Suitable for many Serial Port Applications. Improved Handshaking and many more functions. New Documentation for RS232 Ports etc.

Get our order form at our WEB site http://www.acsi.bc.ca/ or
http://home.istar.ca/~ambersys/

You may also call sales at +1 604 599-9279. We are on Pacific Standard Time – West Coast of North America.

Amber Computer Systems Inc. 14197 74 Ave., Surrey, BC, Canada
Phone (604) 599-9279 • FAX (604) 599-9261
EMAIL ambersys@istar.ca or sales@acsi.bc.ca
WEB Page http://www.acsi.bc.ca or http://home.istar.ca/~ambersys/

Revised, December 17, 1997

Amber Computer Systems Inc. Order Form

Obtain the latest order form from our WEB site.

We accept the following payment methods for our Delphi Components:

* VISA or Mastercard
* US customers please make money orders payable in US Dollars; via post or charge card
* International Customers: International Money Order, payable in Canadian or US dollars; via post or charge card
* a cheque drawn from any bank in your country, in your country's currency
  for the equivalent price in $US; via post
  (Please allow extra processing time for funds clearing)

Our Phone Number is +1 604 599-9279
Our fax number is: +1 604 599-9261
Our e-mail address is: mailto:sales@acsi.bc.ca or mailto:ambersys@istar.ca

Our postal address is: Amber Computer Systems Inc.
14197 74 Ave.
Surrey, BC - Canada
V3W 7N2

All payments should be made out to "Amber Computer Systems Inc.". Please fill out the order
form obtained from our WEB site and send it to us via Mail. A run time version of the component will be sent to you via EMAIL or Post within 14 working days of the arrival of your cheque.

Orders which are sent with a money order will be sent within 2 working days.

Your purchase entitles you to technical support by e-mail and free
upgrades to your component, for 90 days from the date of sale.

These components are Royalty free. You may use them in any application which you (your company) creates with no further payment.