Btrieve Settings for TS and Citrix

Background Information:

F9 Reporting:

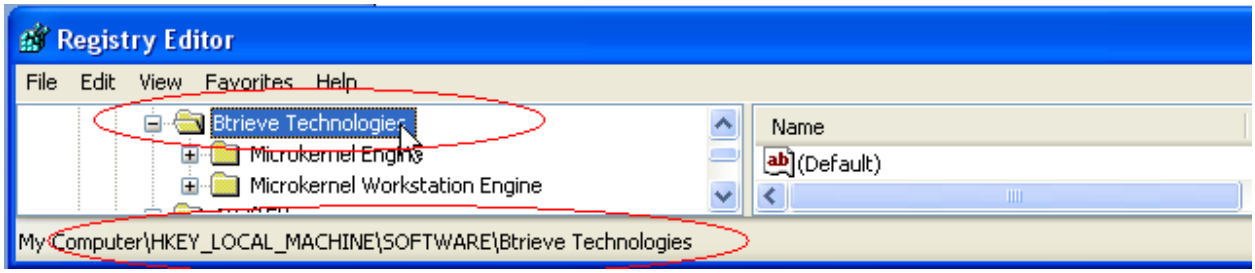
- Uses Btrieve to access and update the F9 Data mart files.

F9 Datapump (F9 Professional Only):

- Uses the Btrieve component to create and update the F9 Data mart files.

Most of the time, F9 is installed on a system where Btrieve is not used by any other application. The easiest way to verify this is by checking the registry entries for the Btrieve Technologies Key.

Important Note Regarding Registry Keys: On newer versions of Windows such as Windows Vista, Windows 7 and Windows Server 2008, registry access to HKEY_LOCAL_MACHINE has been somewhat restricted for security. Please refer to section about Registry Virtualization before proceeding and keep the concepts from there in mind when following these instructions . References to Btrieve setting in HKLM may be virtualized on these systems.



*** An administrator account needs to be used first time when F9 and/or the Datapump is launched.

If the key existed before launching F9 for the very first time (which is very unlikely), then there is another application that uses Btrieve for file access.

The settings we need to change for Btrieve in order to have F9 and the Datapump work properly should not affect other applications.

If F9 is the only application using Btrieve (again, most likely), the good part is that the registry key can be deleted (**when Btrieve components are not loaded**) and it will be recreated when launching F9 or the Datapump.

The default values for the key are the best for F9. It requires just two main changes in order to have everything working properly.

Btrieve Registry - Settings to be reviewed and changed:

The most important information about the Btrieve registry is within Key:

HKEY_LOCAL_MACHINE\SOFTWARE\Btrieve Technologies

On 64 bit versions of Windows, the Btrieve registry key may be located in the following location.

HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Btrieve Technologies

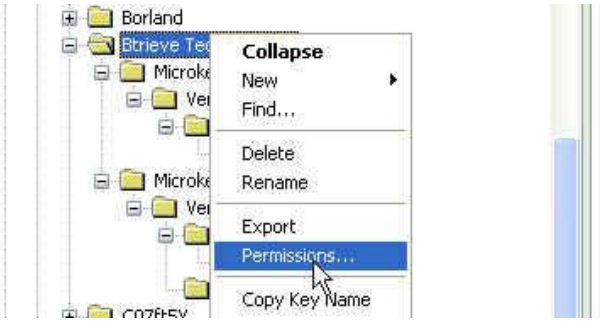
If this is the case on your system, please use this location instead of **HKEY_LOCAL_MACHINE\SOFTWARE\Btrieve Technologies,** subsequently in this document.

- In order for F9 to **able to create the key**, it will require you run with Administrator rights (this is the very first time only, as mentioned).
- The registry key for Btrieve has to be accessible by all F9 users to have Btrieve responding to F9 requests.
- The easiest way to ensure proper functionality is **to give all F9 users full permission to Btrieve registry key**.
- Is very unlikely that other applications are going to use the key and as mentioned before, if the key gets accidently damaged, can be deleted and it will be recreated by F9.

1. Registry Key Permissions:

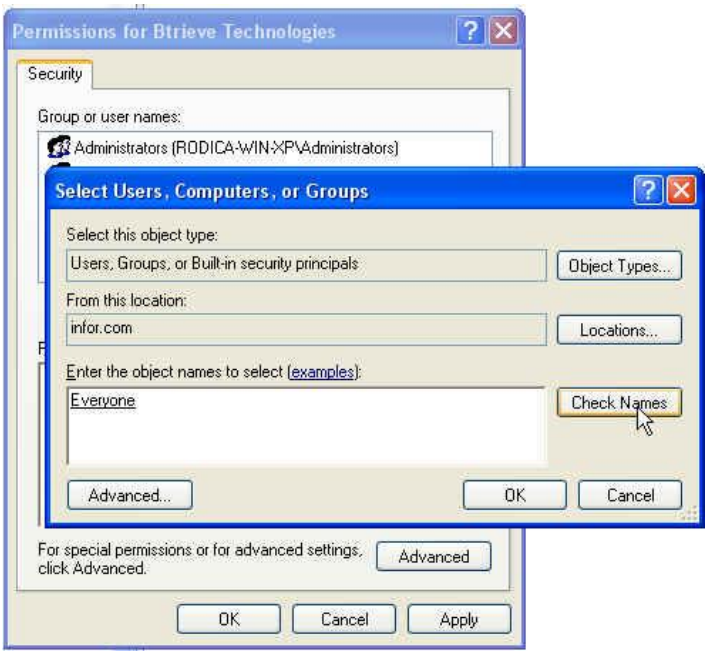
To change permission on a registry key:

- Right click on Key Name -> Permission



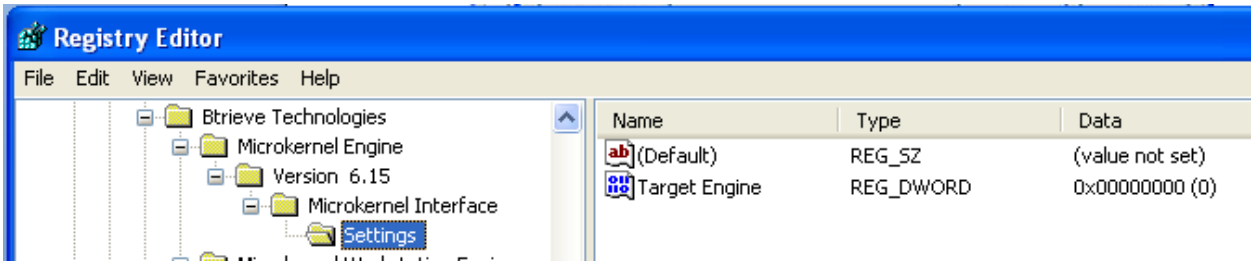
- Click Add.

The example shows adding Group Everyone; can also be a coma separated list of F9 users or an F9 user group:



2. Target Engine:

HKEY_LOCAL_MACHINE\SOFTWARE\Btrieve Technologies\Microkernel Engine\Version 6.15\Microkernel Interface\Settings

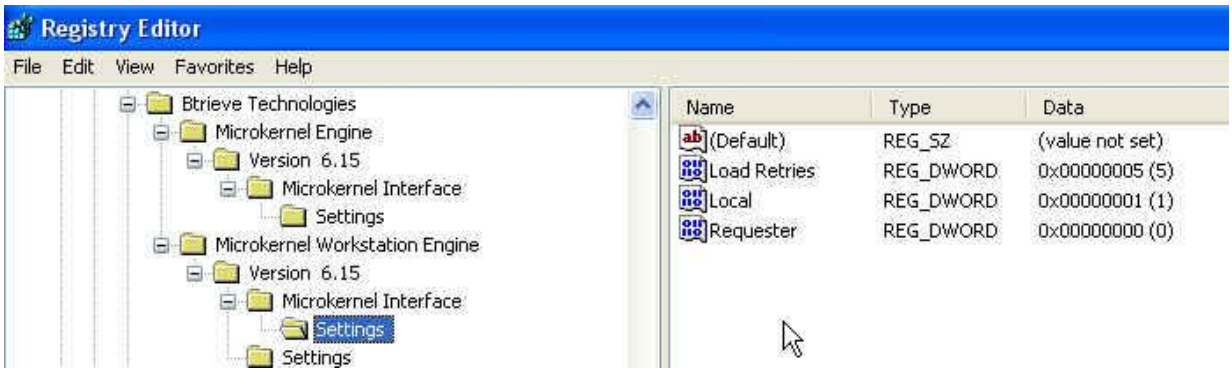


Note: This setting likely requires no change.

3. Microkernel Interface:

HKEY_LOCAL_MACHINE\SOFTWARE\Btrieve Technologies\Microkernel Workstation Engine\Version 6.15\Microkernel Interface\Settings

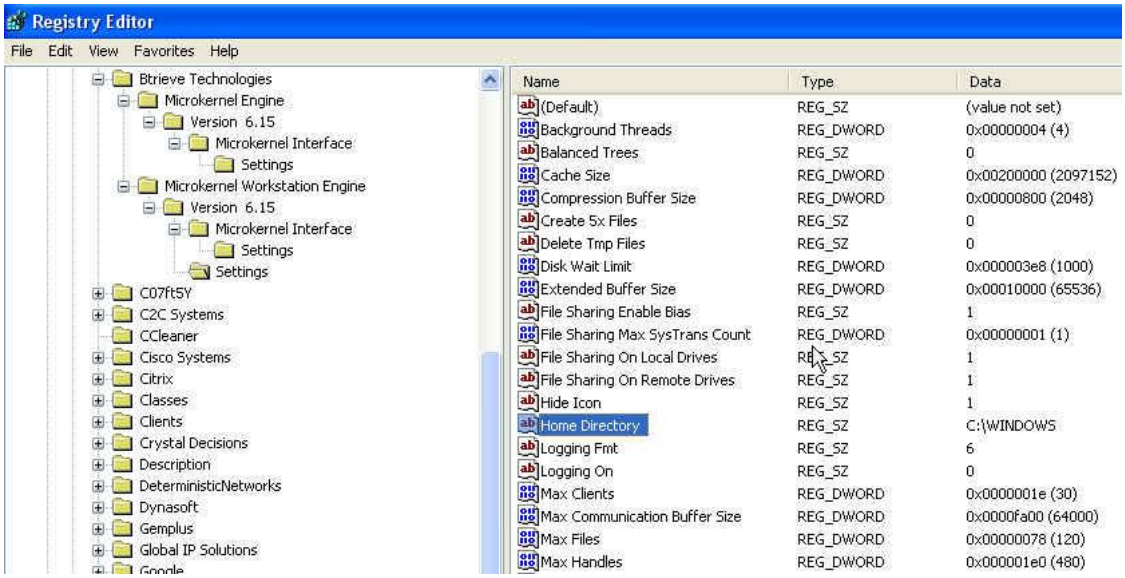
- Values recommended for F9: Local (1), Requester (0).
- F9 will also work fine if both values are (1).


Registry Editor
File Edit View Favorites Help
Btrieve Technologies
Microkernel Engine
Version 6.15
Microkernel Interface
Settings
Microkernel Workstation Engine
Version 6.15
Microkernel Interface
Settings
Settings
Name
Type
Data
(Default)
REG_SZ
(value not set)
Load Retries
REG_DWORD
0x00000005 (5)
Local
REG_DWORD
0x00000001 (1)
Requester
REG_DWORD
0x00000000 (0)

4. Home Directory (Critical Setting For F9)

HKEY_LOCAL_MACHINE\SOFTWARE\Btrieve Technologies\Microkernel Workstation Engine\Version 6.15\Settings

Default Home Directory for Btrieve is C:\WINDOWS



Since NTFS is active, the only users that are having rights to the C:\Windosw (WINNT) folder are the users from the Administrator group Account.

The Home directory folder has to change to a more accessible folder (for the current user) to allow F9 to work properly.

Well known facts:

- Each user has full rights to %AppData% folder = C:\Documents and Settings**user_name**\Application Data
- Home directory for Btrieve can change to point to the %AppData% folder (See Note 1).
- To keep control of the changes, create folder (e.g.) named : BtrieveHomeDirectory on each F9 user folder.
- Each user has to have full rights to this sub folder.
- Simplest way to describe the folder will be %AppData%\BtrieveHomeDirectory. This is the information that needs to be added to the registry key.

Most important fact about this registry key:

- For Terminal Server users, the home directory has to be a different path for each user.
- F9 will not work for multi-users if the Home Directory path is translating to the same path (example: C:\F9Btrieve ..etc).
- Registry key has to contain a “formula” that will get translated differently for each user.

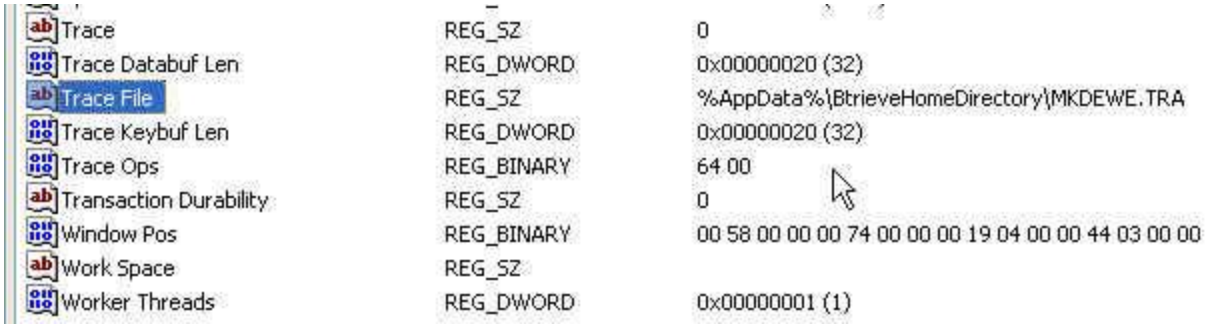
Note 1. A note about %appdata%. We have observed Btrieve not being able to use it in the **`Home Directory`** and **`Trace File`** settings on SOME versions of Windows. If the %appdata% approach does not work in your environment, you can map the same drive letter (e.g. P:) for each user to a different folder for these keys so Btrieve trace and temp files don’t conflict.

5. Trace File Location (Critical Setting For F9)

HKEY_LOCAL_MACHINE\SOFTWARE\Btrieve Technologies\Microkernel Workstation Engine\Version 6.15\Settings

The location for the trace file will be the same as for Home Directory.

Max Communication Buffer Size	REG_DWORD	0x0000fa00 (64000)
Max Files	REG_DWORD	0x00000078 (120)
Max Handles	REG_DWORD	0x000001e0 (480)
Max Locks	REG_DWORD	0x000000dc (220)
Max Transactions	REG_DWORD	0x0000000f (15)
Merge Sort Buffer Size	REG_DWORD	0x00000000 (0)
Minimal States	REG_SZ	1
Page Group Size	REG_DWORD	0x0000001e (30)
Preallocate	REG_SZ	0
Startup Logo	REG_SZ	0
Syserr Notify	REG_SZ	0
Systrans Bundle Limit	REG_DWORD	0x000003e8 (1000)
Systrans Time Limit	REG_DWORD	0x00002710 (10000)
Trace	REG_SZ	0
Trace Databuf Len	REG_DWORD	0x00000020 (32)
Trace File	REG_SZ	C:\WINDOWS\MKDEWE.TRA
Trace Keybuf Len	REG_DWORD	0x00000020 (32)
Trace Ops	REG_BINARY	64 00
Transaction Durability	REG_SZ	0
Window Pos	REG_BINARY	00 6d 00 00 00 c3 00 00 00 7e 02 00 00 22 02 00 00
Work Space	REG_SZ	
Worker Threads	REG_DWORD	0x00000001 (1)

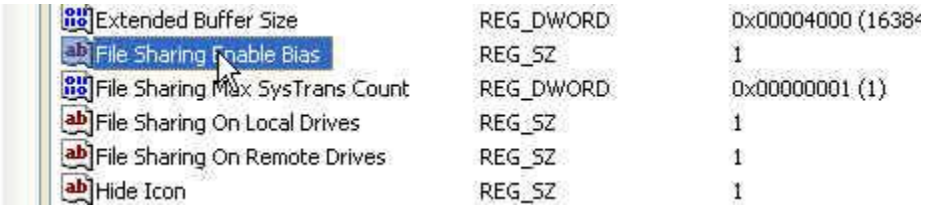


Trace	REG_SZ	0
Trace Databuf Len	REG_DWORD	0x00000020 (32)
Trace File	REG_SZ	%AppData%\BtrieveHomeDirectory\MKDEWE.TRA
Trace Keybuf Len	REG_DWORD	0x00000020 (32)
Trace Ops	REG_BINARY	64 00
Transaction Durability	REG_SZ	0
Window Pos	REG_BINARY	00 58 00 00 00 74 00 00 00 19 04 00 00 44 03 00 00
Work Space	REG_SZ	
Worker Threads	REG_DWORD	0x00000001 (1)

6. File Sharing Keys

Other keys that have to have value 1 (and is the value that comes as default) are the following:

- File Sharing Enable Bias =1
- File Sharing on Local Drives =1
- File Sharing on remote Drives =1



Registry Virtualization

This section applies to newer Windows OS'es (Vista/Win7/Winserver2008) for 32bit apps like Btrieve that attempt to access **`HKLM\Software`** keys.

So that existing old apps won't break because of the new restricted permissions to **`HKLM\Software`**, Microsoft created a mirror of **`HKLM\Software`** in a separate place on a *per user* basis that the user DOES have access to. This new place is called the "Virtual Store" (The old place is called the "Global Store").

HKEY_USERS\<User SID>_Classes\VirtualStore\Machine\Software

Where **<User SID>** is the long identifier for a user on a machine – looks like S-1-5-21-938813117-4588… etc..

And on 64 bit OS's it still also has the Wow6432Node key for settings for 32 bit apps (i.e. Btrieve again)

What happens for these 32bit apps?

Writing

Well if the app does not have write access to a key and attempts to write a value to it or create a subkey, the value is written to the Virtual Store.

Say you then grant rights to the key in the Global Store and the app attempts to write – it succeeds – now you have two copies of the same key.

Reading

Precedence is always given to the Virtual Store. (Let's call it VS from now on and GS for the Global Store)

If the key is requested and it exists in the VS then by golly that's what you get – ***even if key is also in GS and user has rights to that GS key***!!!

If you then delete the VS key, then the GS key is returned.

If you ask for a bunch of keys, you get the values for a merged set from both the GS and VS (VS has precedence)

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