Technical Notes – ScriptBase Client-Server

What is ScriptBase Client-Server?

Client-Server is an application architecture which involves the separation of tasks between service requestors, 'clients' and the software which fulfils those requests, 'servers'.

Why might ScriptBase Client-Server be a good option?

Until now, ScriptBase did not support the client-server architecture. Each sbase.exe required full read / write access to the database files. This allowed for multiple users to simultaneously use ScriptBase on different workstations, as long as each user of the software had full access to the database on a network share.

This topology works well for most situations, though does have some limitations.

- Access to network shares relies on windows networking functions called SMB2. There is a known bug in SMB2 which affects database applications such as ScriptBase. This reportedly causes dramatic slowdown in network performance, for some sites, when a second user started using the software.
- It is difficult to 'scale' and depends on fast networks.
- Database corruption is more likely than in a client-server system due to the fragility of underlying locking / concurrency mechanisms, for example if there is a power failure whilst a client is writing to the database.
- There are data security limitations, since all users must have read / write access to the database. Although encrypted there is nothing to stop malicious deletion of the database or messing with some installation settings.
- Although the software might require further development to gain *all* the benefits, the client-server approach is usually much more performant. This is because queries can be run at the server, so only the *required* data is sent across the network. In none client-server modes, the client side queries require all queried data to be pulled across and queried locally.

When should Client-Server mode be considered?

- If you have sites that require or would benefit from the storage of ScriptBase data on a WAN location, rather than the same LAN as the users.
- If you have an IT department that can set up the Client-Server installations and manage future upgrades. It is more complicated to set up, but likely to be more stable from there on.
- If you wish to take advantage of the increase security, stability and performance of a Client-Server approach.

Costs and availability

The new version of ScriptBase includes the ability to work directly from the database (as previously) and also in client-server mode. An additional download is required of the server software. Installation and configuration are covered overleaf.

There is no additional cost to using ScriptBase in Client-Server mode. Our Licensing model remains unchanged; it is the maximum number of concurrently prescribed clients that determines license cost not user seats or how the software is installed.

Installation and configuration

Client / Workstation
The client side executable is the sbase.exe as previously.

You could install this on each workstation, though we recommend the following approach for stability and easy maintenance.

- Create a dedicated network share for each site which has a ScriptBase database. Put the sbase.exe and the helpfiles into this folder and make read-only to the end-users. On the desktop of each user in that team, put a shortcut to this executable. There is a little additional network load, but the security, stability and ease of maintenance are considerable. Future upgrades involve replacing the executable in a single place and not on every workstation.

In the folder with the sbase.exe, add the file 'localsettings.ini' or edit this if already there. The supplied sample contains all the configuration settings required to put this copy of ScriptBase into standard or client-server mode.

For Standard mode, set the 'DataPath' value to the network share of the database. Comment out all the other settings with a semi-colon ; and it should be working. The BufferMulti setting works in standard and Client-Server mode.

The rest of the settings are relevant only to Client-Server mode. Remove leading semi-colon and adjust settings:

- To turn on Client-Server mode, set ClientServer=1 (default is 0 or 'Standard mode')

- Set the DatabaseName to something relevant to the site, eg. DataBaseName=CDAS This should have no spaces or punctuation.

- Set the Password to a strong password.

- To encrypt the traffic to and from the server, set Encrypt=1 or 0 to turn off encryption. It is suggested you turn this off *only* when using an already encrypted network pipe. For example, the Windows DA networking system uses ipsec encryption and encrypting data twice is *very* expensive and will slow things down.

- Compression is also configurable as a value 0 to 9 where 9 is maximal. If you have a slow network, it might be worth trying higher compression. If you have slow computers but fast network, less compression might be better. The default of 6 is probably best for most sites.

- RemoteHost is the network address of the machine running the server software. At present this has only been tested using an IP address, though it probably works with a hostname.

- The RemotePort defaults to 12005 and should only be changed if you also change this on the server, for example to avoid a conflict with another program or to assist your firewall.

ScriptBase Data Server

The executable sbase_server.exe is the server side software.

Please note, the server software will only run on 64bit versions of windows.

It is recommended that this is located on the same physical machine as the ScriptBase databases. It will still work if you have the data on a LAN share, but this will reduce performance due to the network latency.

Importantly, the server software should only be accessed by the client software over the published port – so sbase_server.exe does not need to be on a share.

Run the installer, which will put the executable sbase_server.exe in C:\Program Files\ScriptBase4\Server. This will also set up some windows menu options which can be used to install, start and stop the software as a service – see the next page.

When the installer is complete, it will open the configuration file 'sbase_server.ini' using the admin privileges so you can edit this immediately. Most settings have sensible defaults and can be ignored for now. See detailed explanation in the appendix.

You should change the 'Admin Password' to something secure. We will return to this under the 'Server Admin Utility' later. This is different to the password set on the client so do not use the same password or confuse the two.

The main settings to edit are those shown in the [Example] at the bottom.

This section shows how a database is made available via the server. You can copy this multiple times to configure several ScriptBase databases which can all be served by the same server instance.

Change the title of the section [Example] to the value you used on the client localsettings.ini for the 'DatabaseName' setting.

Change the DataPath value to the path to the database, probably on the same machine but possibly on a very local and fast LAN location.

Change the SiteDescription to something descriptive about the site. Spaces are allowed.

Change the Password setting to the same value as the one you used on the client localsettings.ini Password setting.

Initial Testing

Run the sbase_server.exe application from C:\Program Files\ScriptBase4\Server – by double clicking the exe file. When this runs, you can select it from the windows task bar. Later on you can install this as a service, but run like this for now.

Even if you have several sites, start with just one to make sure you have everything figured out.

On the client, run sbase.exe. If all the settings are correct, ScriptBase should open as normal. If not, re-check all your settings on both client and server.

It is possible that your firewall will block traffic to the server. You need to allow TCP traffic on ports 12005 and 12006 between the server and relevant machines.

Configuration as Windows service
When you have the installation working properly, you can stop the server and install it as a windows service. It will then continue to run when there is no user logged in.

The installer set up menu options to make this simple. Firstly, run the ‘install service’ option. This will ask your admin password and install as a windows service. Then, select the ‘start service’ option. Use windows services to check it is running and run a ScriptBase client application to check it is accessing the database.

Check that the windows service comes up after a reboot and if it does not, run the windows services utility as an administrator to change the settings for the service so that it automatically starts.

Alternatively, you can use powershell commands to install the service, such as:

```
sbase_server /install /nointeract
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To remove the service, use the menu option or run with the switch /uninstall. If you change the sbase_server.ini settings, you need to restart the server for the changes to take effect. It should be possible to run the service using an account other than Administrator, though you will need to examine Microsoft documentation for instructions.

ScriptBase Server Admin Tool
It can be helpful to know what is going on with the server software, which is not entirely straight forward if it is running as a service on a remote machine.

We have supplied a utility ‘srvadmin.exe’ which talks to the server and provides activity and diagnostic information.

Run the application, click file then ‘options’. Enter the host address of the server and use the defaults for the other settings.

Now click File and ‘Login to Server’.

If there is no error, the software can ‘see’ the server and you will be asked for your password. This is the Admin Password entered into sbase_server.inc

If password is correct and communication with the server established, you are shown a few pages of information. This is pretty self-explanatory, but a few comments.

If you run sbase.exe, and click ‘refresh’ in the admin tool, you should see the new session with the session name of the database and the address. If you open the same ScriptBase on different machines, you will see the additional sessions.

Note that you can stop and start the server using the tool. If you stop the server, any currently connected sessions will crash out (and they just *might* be mid-way through a print-run so it is not recommended). If there are no active sessions it would however be safe.

On the following page, you can change some other settings – but should probably leave these alone for now.

On the Databases tab, you can see a list of all the databases configured and available via the server.

On the Log tab, you can load the log directly from the server

Creating new ScriptBase database

The current release of the Client Server version does not allow you to *create* a new database in Client Server mode. The work around is however simple: Run a copy of ScriptBase in a new directory (with no or empty localsettings.ini) and create a new database in a temporary location. Then, move the database to the server and configure sbase_server to use this, as described above.

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