HTSync

Contents

Introduction

HTSync is a file replication system. It was designed primarily as a *continuous backup* system, but can be used as a means of distributing files between many PCs.

Concepts

HTSync works on a client-server basis. For each system, there is one computer designated a server and many computers designated as clients.

Changes made to monitored folders will be replicated back to the server, and then onto all the other client computers.

If the server is off-line, or if the client has no network access – then all changes will be cached until communications are re-established.

You can have any number of "sets". A set is a file path on your computer that will be monitored. All files and directories in a set will be replicated.

To ensure privacy, all communications between the computers are encrypted using 1024 bit encryption.

Both client and server software elements run as a service – no user interaction is required.

File conflicts

If a file conflict occurs (e.g. one user updated a file whilst offline, another user elsewhere also updated the file and then the first user came back online) – both copies will be preserved, but the out of sequence version will be append with its time and date
e.g. "`My Document.doc`" might be called "`My Document (23-01-2011 17-24-35.doc`"
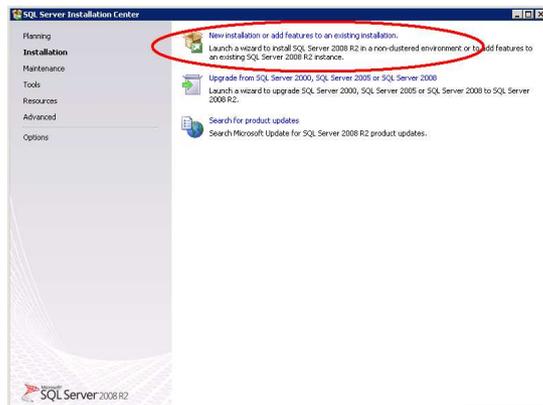
Installation

The system is written using Microsoft .Net 4.0 – this will need to be installed if it isn't already present on the system.
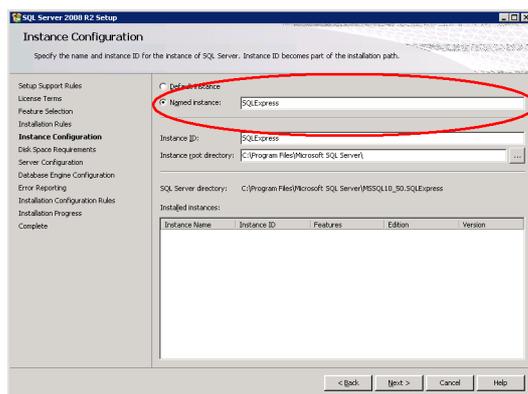
Server

The server element of the system uses Microsoft SQL Server to keep track of which files need to be sent to which workstation. You can either install a new copy of SQL Server (we recommend the latest free version: SQL Express 2008) or use an existing installation.

Installing SQL Server Express

There are a number of versions of SQL Express. We recommend that you use SQL Express with Management Studio.
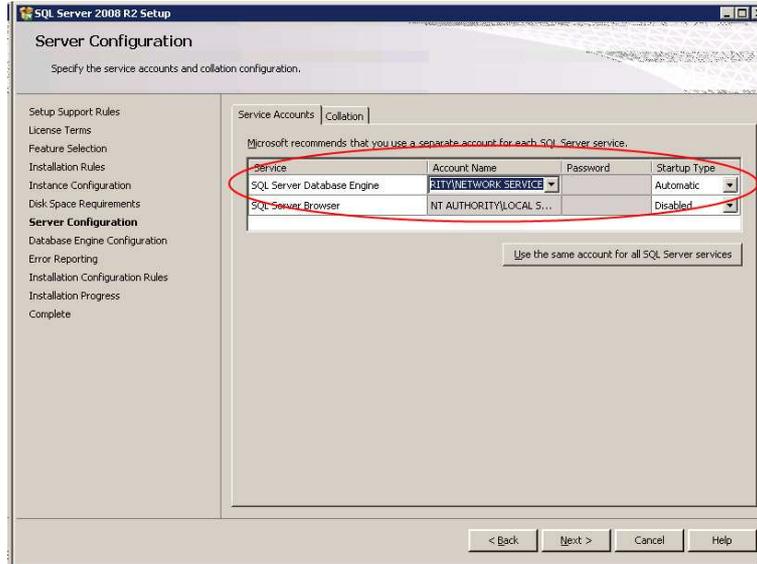

Select "New Installation…" and accept the default options until you reach this screen

Take note of the instance name (in this image, ***SQLExpress***) as you will need it later when configuring the HTSync server software.
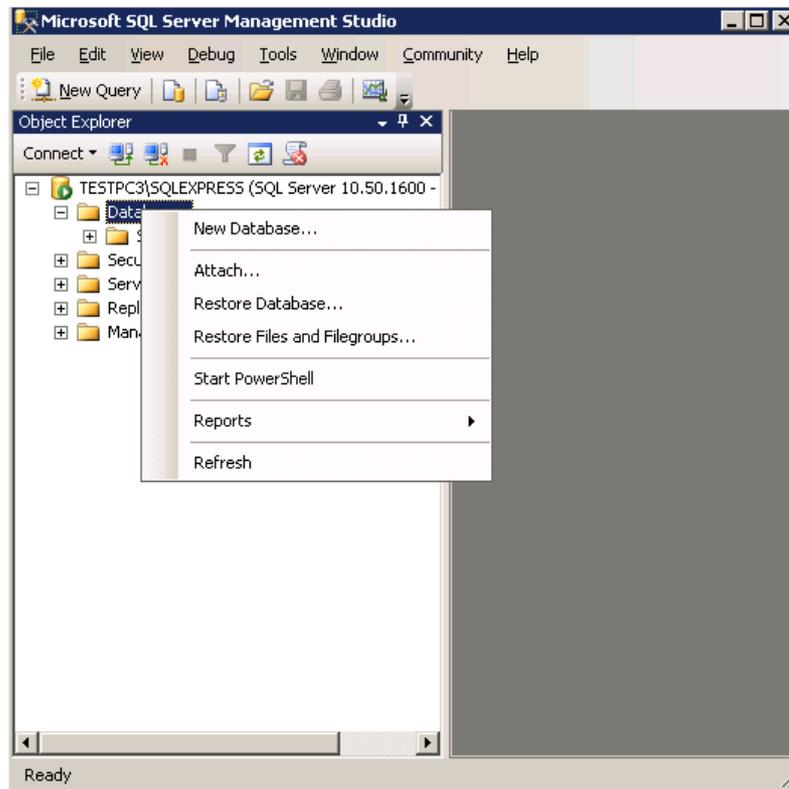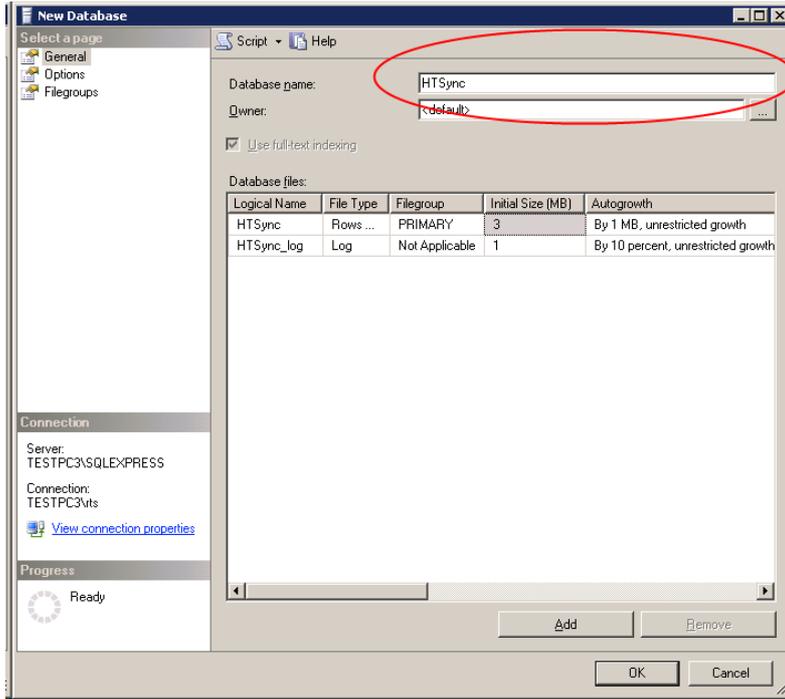
At this screen:

Select either NETWORK SERVICE or SYSTEM as the account for the Database Engine. You should not need to enter a password.

At further screens, accept the default options.

Once SQL Server is installed, open SQL Management Studio and create a new database

<u>Installing & Configuring HTSync</u>

Run the setup program to install HTSync Server.

Once HTSync server has installed, use the server configuration program.
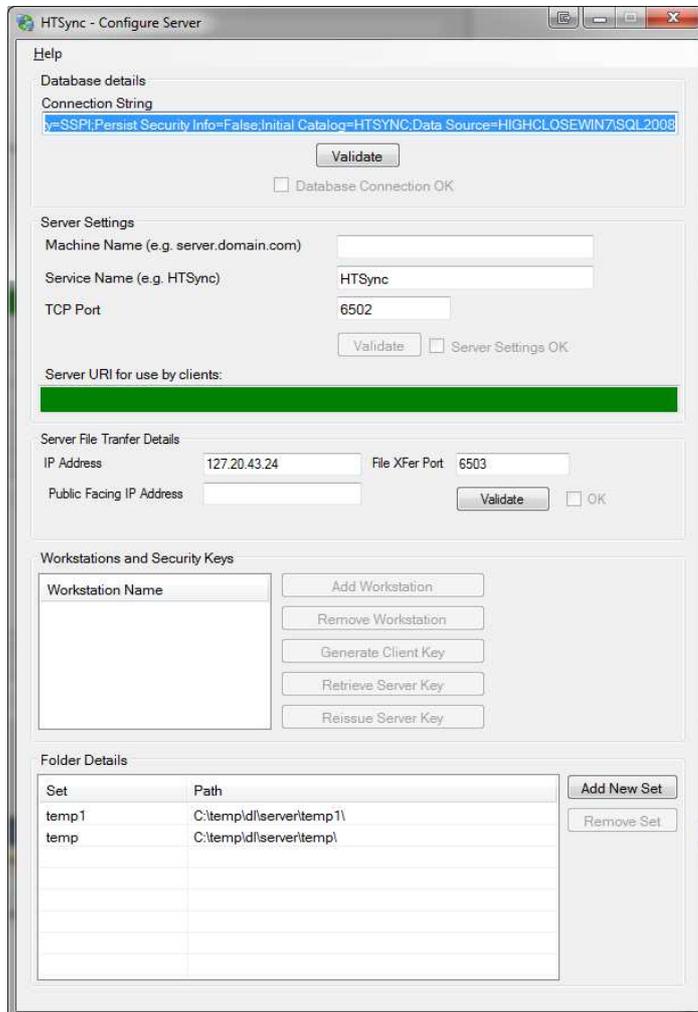
Connection String
This is the SQL Connection string to the SQL database that you have installed and created.

The format of this is:

Integrated Security=SSPI;Persist Security Info=False;Initial Catalog=*HTSYNC*;Data Source=*PCNAME\SQLNAME*

Where:
      HTSync is the name of the database that you created.
      PCNAME is the name of the PC that you installed the database on. If you installed the database on the same PC as the server software, then you can use *localhost* as the PC name.
      SQLNAME is the SQL instance name that you set during installation of SQL Server.

So, if you accepted all the default options and created an HTSync database, and the database is on the same machine as the HTSync Server software, your connection string will be:

Integrated Security=SSPI;Persist Security Info=False;Initial Catalog=HTSYNC;Data Source=localhost\SQLExpress

Once you have entered the correct connection string, you can press the Validate button. If a connection is established then the ***Database Connection OK*** box will become checked.

Server Settings
These settings correspond to the communication channels used by HTSync.

Machine Name
Enter here the fully qualified name or IP address of your server. If you are only using the system within your network then the name of your PC will be sufficient. If you wish to use the system over the internet, then you will need to enter the public IP address or name that can be used to access the PC.

Service Name
This is the URL which HTSync is made available on. Only change this if you have another service of the same name on your server PC.

TCP Port
The port over which the system will communicate. The server's firewall will have to allow traffic over this port, and if you wish to communicate over the internet then you will need to ensure that your internet firewall allows communications through on this port.

Once you have decided on the server settings, press "Validate" and that will test to see if the that port number and service name are free.
Please note:
- **This does not check that your firewalls allow communications through this port.**
- **If the HTSync service is currently running (see services.msc) then validation will fail.**

Server URI for use by clients
If validation succeeded, the URI (unique resource identifier) for the server will be listed here. This should be copied as the clients will need this information are part of their configuration.

Server File Transfer Details

HTSync uses two communication methods – one is for authentication and notification purposes, and the other is for high speed file transfer. The server file transfer details are to configure the high speed transfer.

This transfer takes place on a separate port on your server. To configure this, you will need IP address of the server and also the port number that you wish to run on.
Note
The port number must be different to that as specified in the Server Settings. This port will also have to be opened in any firewall.

IP Address
In the IP address *do not* enter the server name – this must be the IP address of a network card within the server. The reason for this is that most computers have more than one IP address bound to their network card (loopback 127.0.0.1 for example) and the correct IP address must be bound to. This is the internal IP address.

Public facing IP address
In most cases this should be set to be the same as the *IP Address.* This setting is the value that is passed to the clients when they connect. It will be set to a different value, if, for example you are using *Network Address Translation* with your external firewall – in which case you would set to the address of the router that will forward the port requests to the internal *IP Address*

Workstation and Security Keys
In this section, the PCs that are allowed to access your system are defined. **Please note, the HTSync Server Service will need to be restarted before changes/additions to workstations will take effect.**

Add workstation
Click this to add a workstation. Decide on a name for your client PC. This name will need to be entered as part of the client configuration.

Remove workstation
If you wish to remove a workstation from synchronisation – select the workstation in the list and hit the remove button.
Please note:
- **If a workstation is removed that workstation will cease communications immediately.**
- **If a workstation is removed and re-added then a new client key will have to be installed.**

Generate Client Key
Each client workstation has its own unique security key, to ensure the privacy of your data.

After adding a new client, generate a new client key. This will allow you to save the client key. This key must be copied to the relevant workstation.
Please note:

- **Every time you generate a new key for a client workstation, it will need to be installed into the client software.**
- **Keys are not interchangeable between workstations.**

Retrieve Server Key
The server also has its own security key. Press this button to retrieve a copy of it.
A copy of this key will need to be installed on all clients.

Reissue Server Key
This will cause the server to install a new security key.
Please note:
- **If the server key is reissued, all existing server keys will be invalid and all client workstations will need the new key before synchronisation can continue.**

Folder Details
In this section you define where the server should store the data and what the sets are called.

Sets need to have a unique name, and each set must have a valid path on your computer.
To edit an existing set, double click on it.

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Client(s)

HTSync can accommodate multiple clients.

Install the HTSync client software and ensure that the service has started. Once this has completed, run the client configuration software.
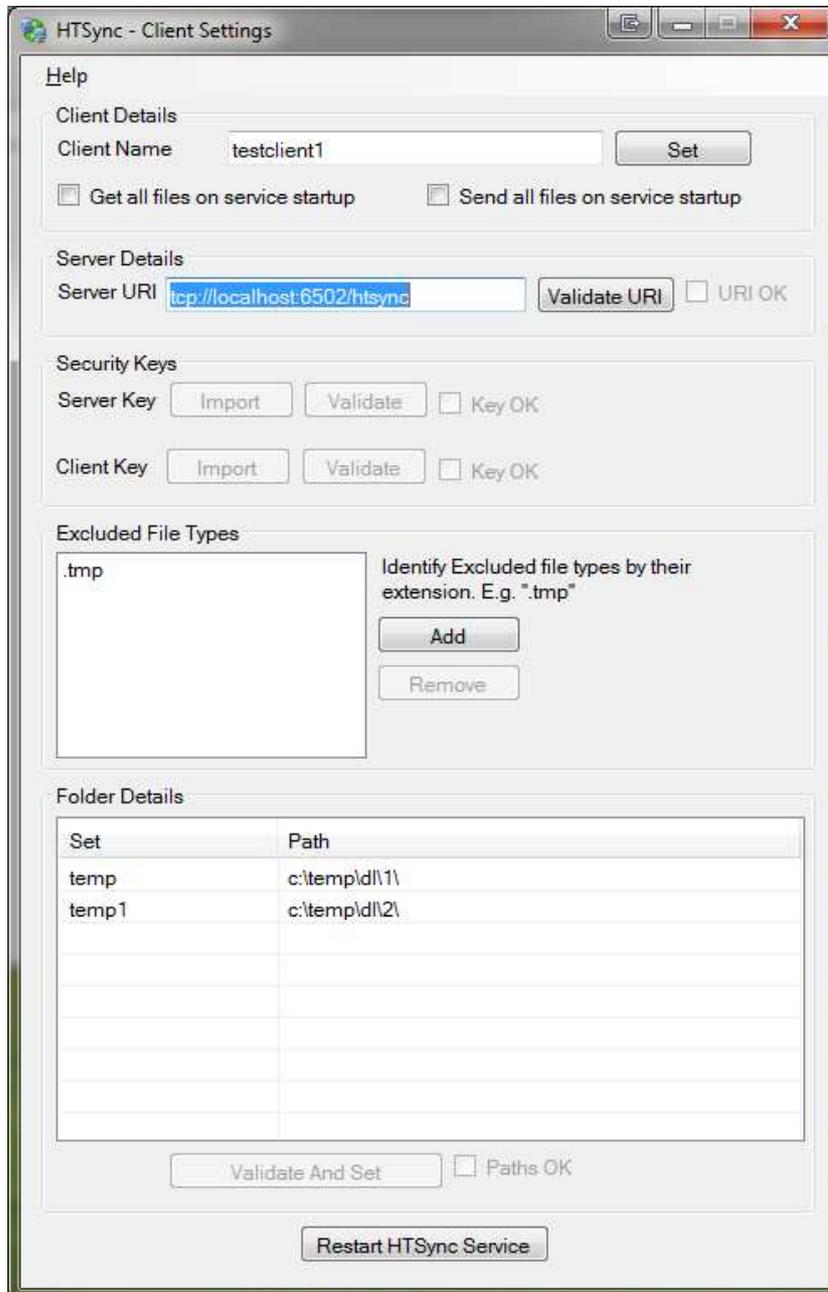
Client Details

Client Name
The name entered here should correspond with one of the workstation names detailed in the server configuration. Press the SET button to write the name to the configuration file.

Get all files on service startup
This requests that the server sends all existing files to the client the next time that the service starts.

Send all files on service startup
This requests that your workstation sends all its existing files to the server the next time that the service starts up

Server Details
Server URI
Enter the URI as detailed in the server configuration.
e.g.

```
tcp://server:6502/HTsync
```

Press the validate button to ensure that server can be found.

Security Keys
Once the server URI has validated, you are now in a position to enter and validate the security keys.
Using the keys created by the server configuration program, import and validate, in turn, the server and client security keys.

Excluded File Types
You can maintain a list of files that you do not want a particular client to synchronise. These are identified by their file extension.

Folder Details
After the security keys have validated, you will be given a list of available sets for synchronisation. Each set must be given a path on your local system to store the data. Double click on a set to edit.

Once you have assigned the set paths – press the validate button to ensure that the data is written to the configuration file.
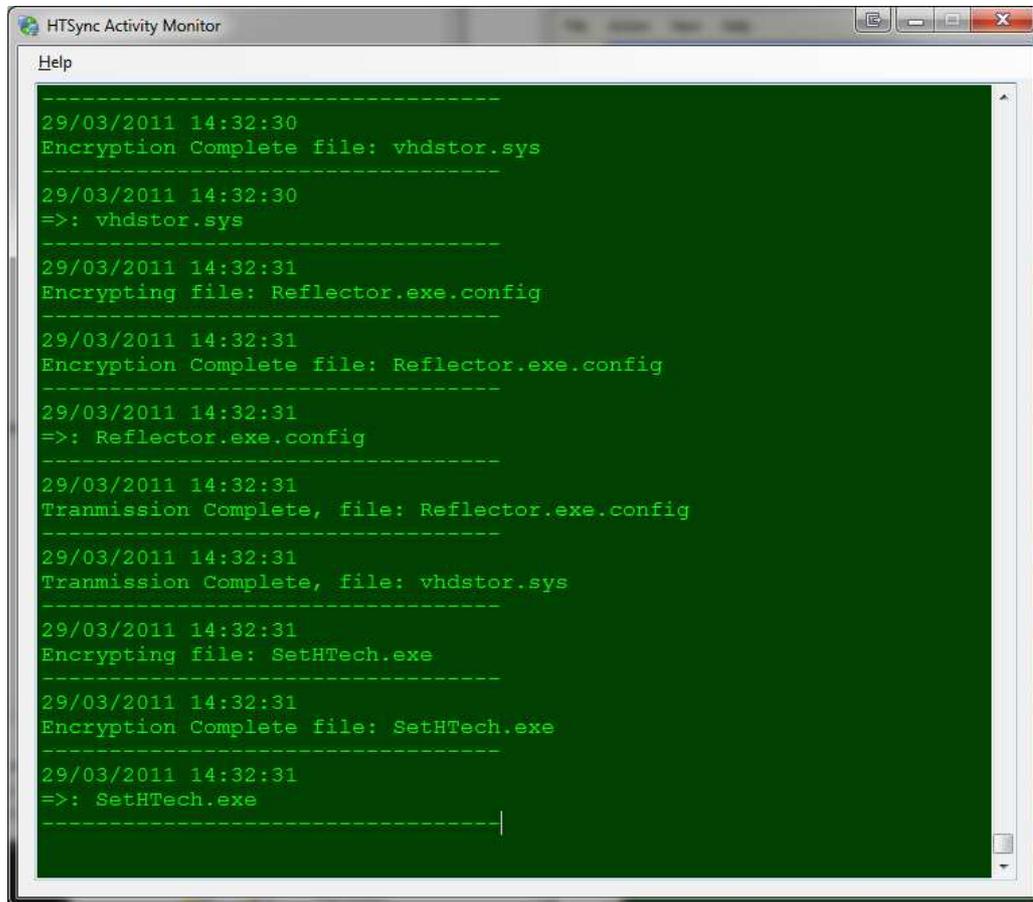
Restart HTSync Service
As the client software is service based – the service will need to be restarted after configuration changes. Either reboot your workstation, use the service control manager or press the *Restart HTSync Service* button.

Activity Monitor

Both the client and server applications come bundled with an activity monitor. This details file transfers in progress etc.

The monitor will minimise to the system tray.

Software Licences

If the software not licenced, you will receive this notification each time you launch the configuration software or the activity monitor

Please contact us for a licence key.

System Requirements

Client
- Any PC running .Net 4
- Network access to the server machine

Server
- Any PC running .Net 4
- SQL Server 2000 or later
- Network access to the client machines

Please note, it is possible to run both the server and client components on the same machine – however if this is so then the server storage paths must not conflict with the client storage paths.

Notes

Comms Error

Please note – occasionally, the activity monitor will display "Comms error" and disconnection messages. This are not a cause for concern and occur naturally as the server and client go into "sleep mode" due to lack of communications.

Firewalls

Both clients and server will not communicate if their firewalls are not opened on the relevant ports.

Bork

Very rarely will you see a "bork" message in the activity monitor.
This implies that the client (or server – depending on which machine you see it on) service does not have read/write/delete rights to the relevant directories. Change the user rights on the directories in question.