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About BitTorrent Sync

BitTorrent Sync is a simple tool that applies p2p protocol for direct live folder sync with maximum security, network speed and storage capacity. It has native versions for Mac, Windows and Linux, as well as native NAS integration.

Technology

Your files are synchronized through peer-to-peer (p2p) protocol, where each of the connected computers acts as a 'client' and a 'server' at the same time.

Connection

The devices in sync are connected directly. Connection is established by use of UDP, NAT traversal, UPnP port mapping, and relay server. If your devices are on a local network, BitTorrent Sync will synchronize them without the Internet connection.

Security

For security all the traffic between devices is encrypted with AES cypher and a 256-bit key created on the base of your **Secret** - a random string (20 bytes or more) that is different for every folder.

System requirements

- OS X Snow Leopard or newer

- Windows XP SP3 or newer*, Windows Server 2008 or newer

- Linux with kernel 2.6.16 (glibs 2.4) or newer on ARM/PPC/i386/x86_64

   Windows XP 64-bit is not supported. BitTorrent Sync is not guaranteed to work on unsupported platforms.

NAS Support

You can install BitTorrent Sync on Network Attached Storages (NAS) running on Linux with ARM, PowerPC, i386 and x86_64 architecture. SSH access to NAS is required.

BitTorrent Sync was successfully tested on devices from the following producers: Synology, Western Digital (WD), Iomega, D-Link and QNAP.

Known issues

1. BitTorrent Sync may handle events incorrectly in the following cases:

   - .!sync files are changed outside of BitTorrent Sync

   - shared folders renamed or deleted outside of BitTorrent Sync

   - no free disk space left

Installing BitTorrent Sync

1. Mac and Windows

To install BitTorrent Sync on your Mac or Windows computer, follow the usual installation path.

2. Linux and NAS devices

Depending on what system you use, choose appropriate BitTorrent Sync binary (i386, x86_64, ARM, PPC) and run it from the command line.

To run BitTorrent Sync on your NAS:

- Enable SSH access on your NAS device (depends on vendor).
- Check CPU type of your NAS. Currently BitTorrent Sync supports ARM, PPC, i386 and x86_64 processors.
- Download and unpack the right BTSync binary archive.
- Connect to NAS using SSH and copy BitTorrent Sync binary there.
- Run ./btsync from the directory where it is located for use via Web UI only. If you want to use a config file, follow these steps.

Access on Linux and NAS

On Linux and NAS, BitTorrent Sync can be accessed and managed via Web UI or command line.

WebUI can be accessed by default at YourLocalIP:8888/gui

Default port 8888 can be changed in the config file (get example by running --dump-sample-config).

CLI (Command line interface) is an alternative way of managing BitTorrent Sync. You can get a list of available commands by running BitTorrent Sync with --help argument.

Quick start

1. Adding folders to sync

To add a folder to BitTorrent Sync, click on the '+' button (Mac) or "Add" button (Windows) at the bottom of the **Folders** tab.

Generate new or enter an existing **Secret** that someone shared with you, and then choose the folder you would like to sync.

If asked, configure your firewall at the 1st run to allow BitTorrent Sync accept incoming connections.
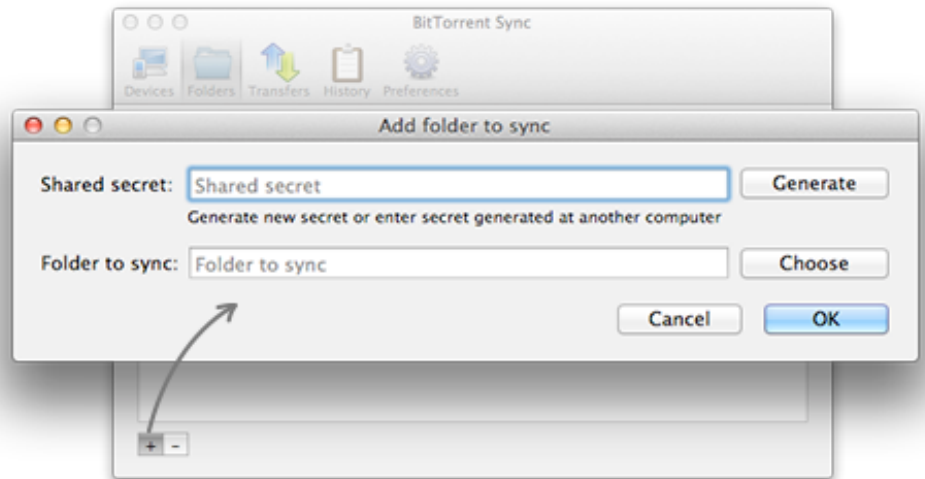
2. Connecting to other devices

After you generated a secret, you can find it in the folder's advanced preferences (access it by double or right click). As a quicker alternative, use context menu to copy the secret to the clipboard.

To synchronize with other devices, add new folder and enter the secret generated for the folder you want to sync with. Once a device is online, synchronization process is initiated immediately.
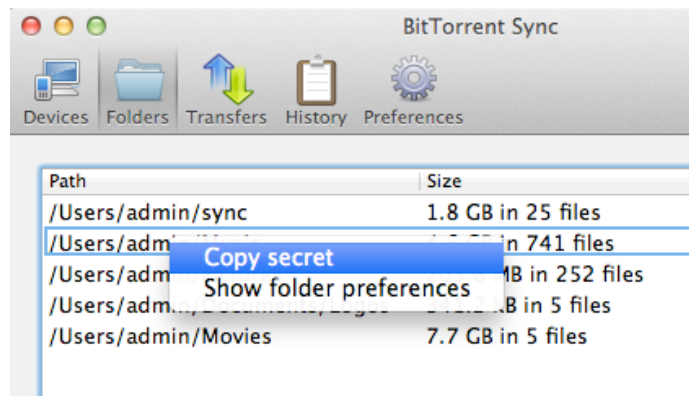
3. Staying synchronized

After you are online and connected, BitTorrent Sync will synchronize chosen folder(s) immediately. Then you can leave it run in the background or access the app's interface via the System Tray (Mac) or Status Bar (Windows) icon.

You can keep track of the synchronization process in the History tab.

BitTorrent Sync user interface

In BitTorrent Sync you can see info about the connected devices, folders in sync, ongoing transfers and speed, history of download and upload, and preferences.

1. Connected Devices

In the 'Devices' tab you can see the **devices** you are connected to and **folders** you sync with each of them.
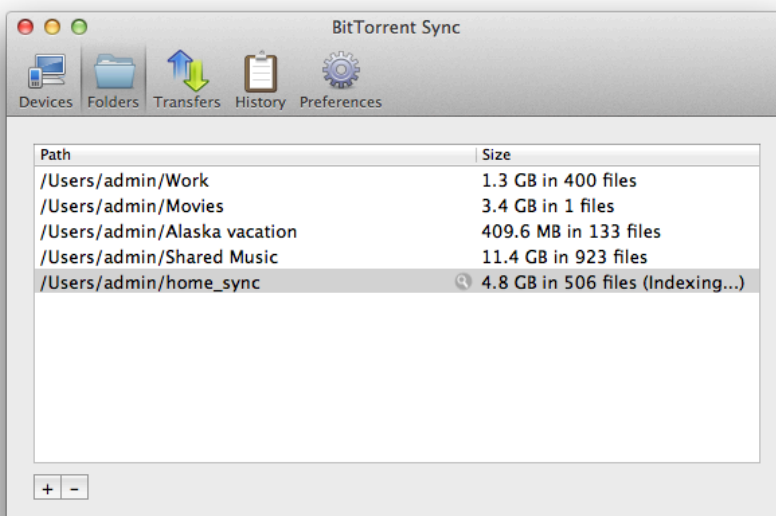
Status column shows you when sync is finished, as well as the total amount of the data you can upload to or download from a device (empty values are not displayed).

Small **cloud icon** indicates that you are connected through relay server.
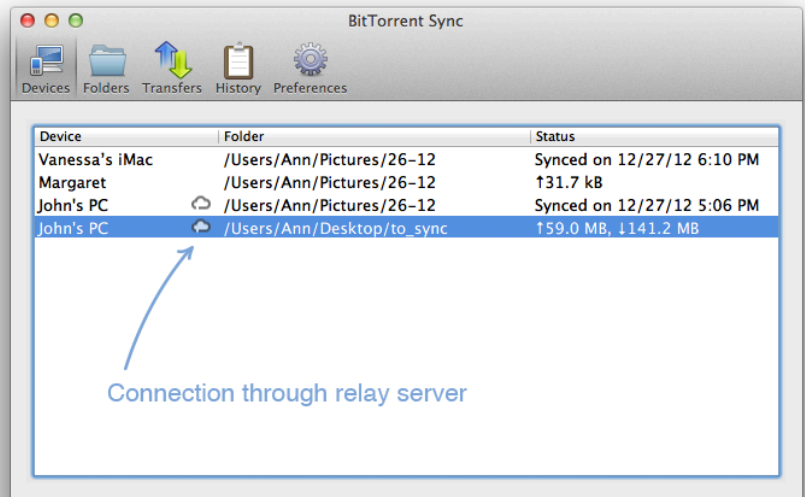
2. Folders in Sync

'Folders' tab shows you the list of folders in sync, as well as their sizes and the number of files inside.
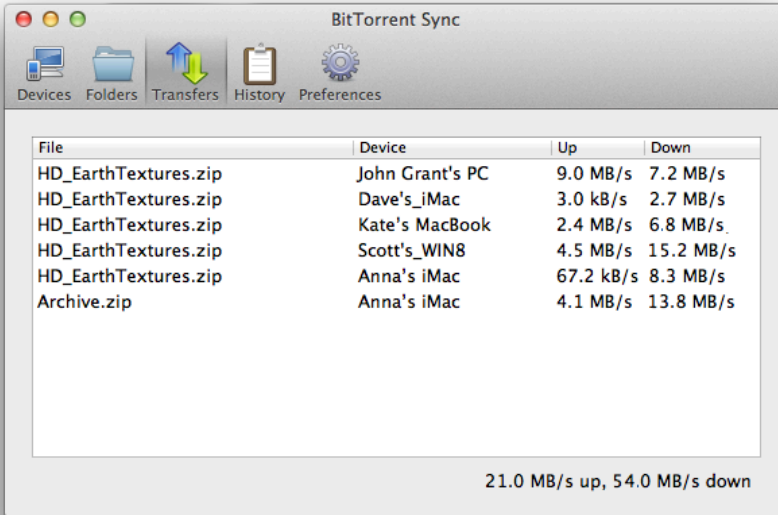

After you add a new folder, BitTorrent Sync spends some time indexing it (calculating checksums of the files for further optimization of the transfer process). Indexed files start syncing immediately, even before the whole folder is indexed.

Folders can be opened in Mac Finder (click on magnifier icon) or Windows Explorer (right click on folder - Open folder).

3. Current transfer jobs

In the 'Transfer' tab you can see what files are being transferred at the moment, the list of devices you transfer to / from, as well as upload and download speeds for each device.
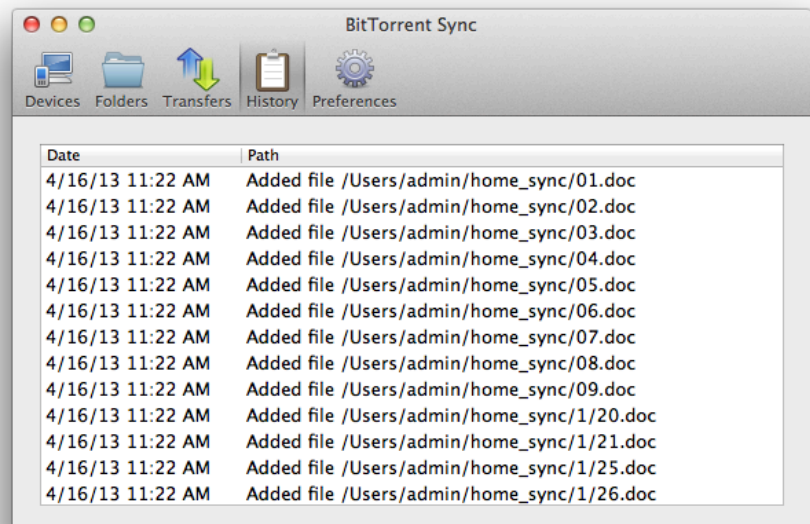

Total transfer speed is shown in the right bottom corner.

4. Syncing history

BitTorrent Sync logs several types of events: adding, deleting, renaming, updating files and end of synchronization.

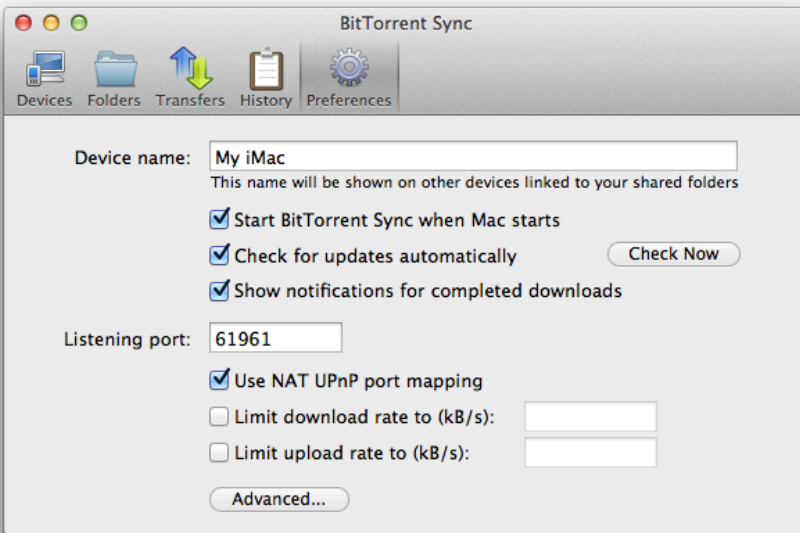*These events are shown for each of the connected devices.*

Preferences and configuration

Device name - Updates - Notifications - Limits - Relay server - LAN - DHT - SyncTrash -Known hosts - Secret - WebUI - Config file - .SyncIgnore

1. Mac and Windows

General preferences for the app can be set in the 'Preferences' tab.

Here you can change the name of your computer as it is shown on other devices, configure updates and notifications, change the listening port and map it using UPnP, as well as set limits for total upload and download speeds.

Note that by default speed limits are not applied in the local network (can be changed in Advanced preferences).

Advanced preferences

Advanced preferences are intended for expert users. Modify at your own risk!

disk_low_priority sets priority for the file operations on disc. If set to false, Sync will perform read and write file operations with the highest speed and priority which can result in degradation of performance for other applications.

lan_encrypt_data - if set to true, will use encryption in the local network.

lan_use_tcp - if set to true, Sync will use TCP instead of UDP in local network.
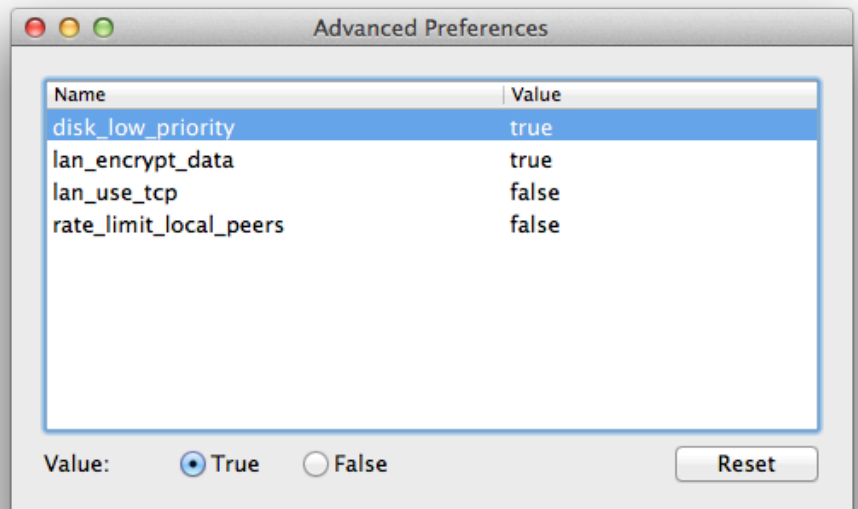
Note: disabling encryption and using TCP in LAN can increase speed of sync on low-end devices due to lower use of CPU.

rate_limit_local_peers applies speed limits to the peers in local network. By default the limits are not applied in LAN.

Note: BitTorrent Sync should be restarted to apply changes in advanced preferences!

Folder specific preferences can be accessed via double or right click on a folder in the 'Folders' tab.

'General' tab

- **Relay server** is used when it is impossible to connect to other devices directly due to NAT issues.

- **Tracker server** can be enabled to facilitate communication between peers.

- '**Delete Files to Sync trash**' saves all the files deleted on other clients to the hidden '.SyncTrash' within your folder (unless unchecked in preferences). The files deleted on your computer are moved to system Trash (depending on OS preferences).

- '**Use predefined hosts**' is an option to specify *ip:port* or *host:port* of known clients. So if one of your devices has a static and accessible IP, peers can connect to it directly.
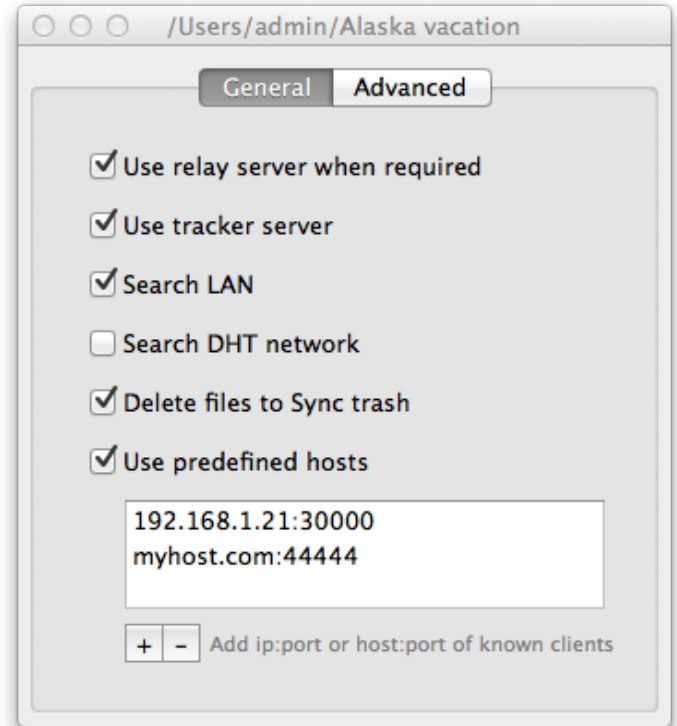
'Advanced' tab

Advanced folder preferences are used for managing secrets.

- **Secret** is a 20 byte master key for connecting folders. All the folders added with this secret will be granted a full set of permissions for two-way synchronization. Master secret can be changed at any time or replaced with a custom Base64 string more than 40 symbols long (new folder secret should be re-entered on all the devices in sync).

- **Read only secret** is generated on the basis of the master secret and is used for one-way synchronization. It means that any folder with a read-only secret will be fully synced, but changes made in it will not be reflected in the folders operated by a master secret. Also, it is not possible to change secret for read only folders.

- **One-time secret** is a security option available for the folders operated by a master secret. You can generate either a full access or read only short key (16 characters) which can be used only once and should be activated within a limited period of 24 hours. When connected, folder added with a one-time secret will receive a full master or read-only secret from the device where the one-time secret was generated.
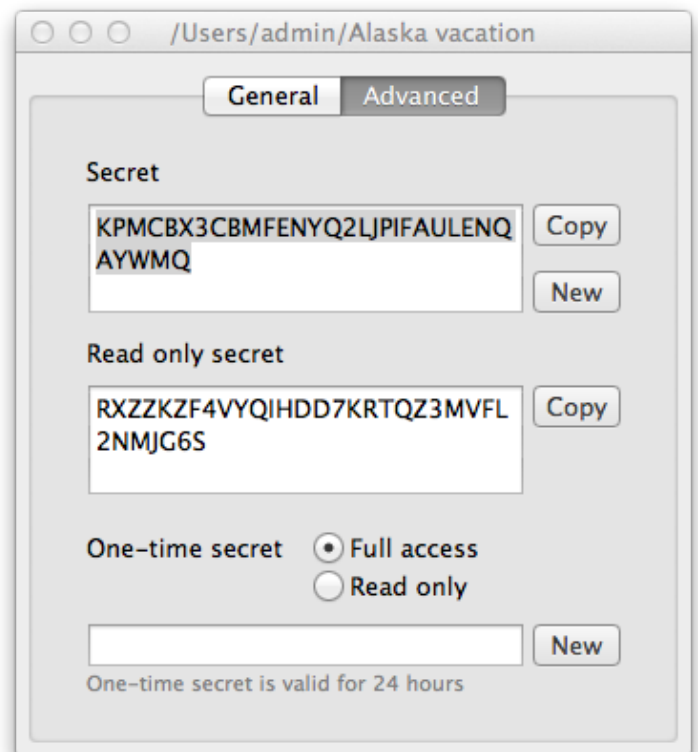
2. Linux and NAS devices

WebUI is the default way of accessing BitTorrent Sync. It can be reached at:
YourLocalIP:8888/gui.

You can manage both general and folder preferences via WebUI the same way as from a desktop application.
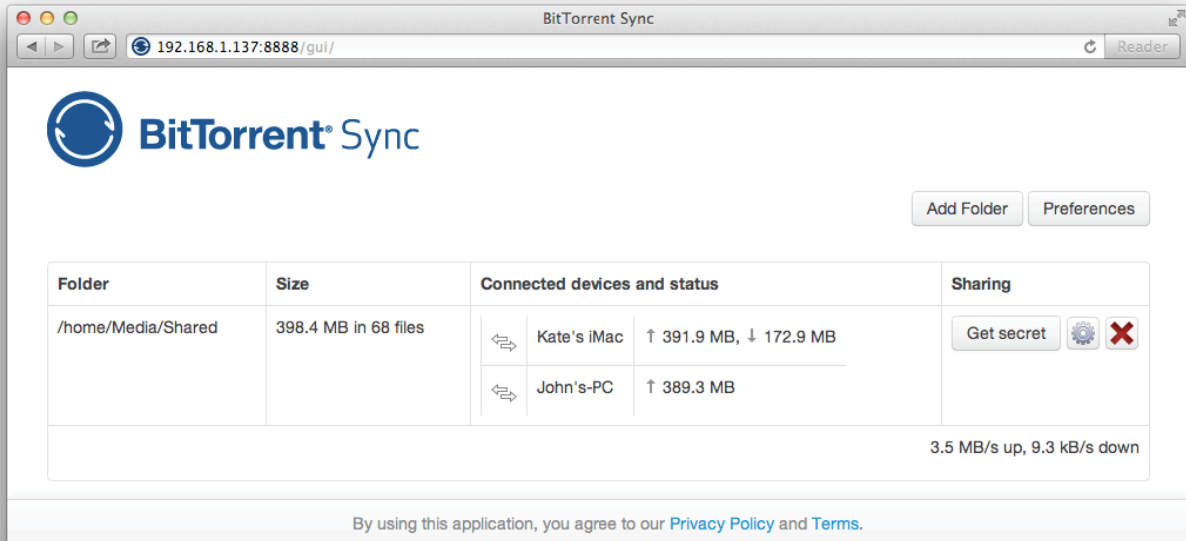
Config file offers a slightly wider variety of options to configure. It is a JSON format file.

In order to set preferences using a config file, first get a sample config by running --dump-sample-config. You'll see a list of options and commentary.

```
1   {
2     "device_name": "My Sync Device",
3     "listening_port" : 0,                    // 0 - randomize port
4
5   /* storage_path dir contains auxilliary app files
6      if no storage_path field: .sync dir created in the directory
7      where binary is located.
8      otherwise user-defined directory will be used
9   */
10    "storage_path" : "/home/user/.sync",
11
12  // uncomment next line if you want to set location of pid file
13  // "pid_file" : "/var/run/btsync/btsync.pid",
14
15
16    "check_for_updates" : true,
17    "use_upnp" : true,                       // use UPnP for port mapping
18
```

You can save config file to any desired location.

For example, to save it to the current directory, run:
```
./btsync --dump-sample-config > sync.conf
```

After you saved the config file, you can customize it and then run BitTorrent Sync with the modified config.

For example, if your config file is in the same directory with BitTorrent Sync, run:
```
./btsync --config sync.conf
```

Before running BitTorrent Sync with config file, make sure it is a valid JSON. Otherwise, you'll get an error message.

Advanced application settings are available but not shown on Linux by default. You can manage them via the config file. Just add some or all of the following lines to the config file and change the default true/false values as needed:

```
"disk_low_priority": true
"lan_encrypt_data": true
"lan_use_tcp": false
"rate_limit_local_peers": false
```

You need to restart BitTorrent Sync in order to apply changes of advanced preferences.

3. Ignoring files

If you have files in your sync folder that you don't want BitTorrent Sync to track, you can use .SyncIgnore.

.SyncIgnore is a UTF-8 encoded .txt file that helps you specify single files, paths and rules for ignoring during the synchronization job. It supports '?' and '*' wildcard symbols.

Note that .SyncIgnore is applied only to the folder where it is contained and will not work with the files that have already been synced.

If you add indexed files to .SyncIgnore, they will be deleted on other syncing devices. In order to avoid this:
1. Quit BitTorrent Sync or remove the folder from sync on all the devices.
2. Modify .SyncIgnore file on all of them so that it contains same info.
3. Run BitTorrent Sync or re-add the modified folders.

General behavior and FAQ

What is a Secret and how does it work?

- Secret is a key that connects different devices and joins them together. We automatically generate secrets to ensure their uniqueness. Since each Secret is 20 bytes or more long, it is virtually *impossible that other people can see your synced files and download them* without it.

- After a folder is added to BitTorrent Sync, the Secret is stored in its advanced preferences and can be accessed by double or right click on a folder in the "Folders' tab.

- There are 3 types of secrets: master (full access) secret, read only secret for one-way sync and one-time secrets (both full access and read-only). Read only and one-time secrets may be generated only for folders operated by master secrets.

- If you are concerned about security, BitTorrent Sync provides opportunity to regularly generate new secrets for a folder, or replace an existing secret with your own Base64 string more than 40 characters long. New folder secret should be re-entered on all the devices in sync.

How soon does synchronization start?

- When a file is added to the shared folder, the changes start syncing immediately (due to the system peculiarities, sync on *Mac OS X 10.6* may be delayed up to 10 minutes). If you change a file inside a shared folder, sync will start after the file is saved and/or closed.

What happens if a file is deleted on one of the devices?

- Files deleted from a sync folder on your computer are handled depending on your OS preferences (moved to Trash/Recycle Bin/similar folders or deleted completely). On the other syncing devices these files will be moved to the '.SyncTrash' in their sync folders ('.SyncTrash' is hidden by default).

What if several people make changes to the same file?

- When a file is changed on one of the devices, it will be recreated as a new copy and synced to the other devices. We save only the latest version of the file.

What if files with same names are added from different computers?

- We give human action first priority and always consider it right. That's why if several files with the same name are added on different devices, BitTorrent Sync will synchronize the file that was the latest added to BitTorrent Sync even if it is not the newest version of the file itself. Previously added files will be deleted, but you can find them in .SyncTrash (if enabled in folder preferences).

What happens when I remove folder from BitTorrent Sync?

- If a folder is removed from BitTorrent Sync, all the synced files stay there; incomplete files with the .! sync extension will be deleted.

Does BitTorrent Sync support versioning?

- Currently versioning is not yet available in BitTorrent Sync. We are planning to add it in the future versions.

Is one-way synchronization possible?

- Yes, starting from the version 1.0.95 BitTorrent Sync features one-way synchronization. It is established via read only secret (permanent or one-time). Any folder with a read-only secret will be fully synced, but changes made in it will not be reflected in the folders operated by a master secret.

Can other BitTorrent users see my shared files?

- No. BitTorrent Sync is based on BitTorrent protocol, but all the traffic is encrypted using a private key derived from the shared secret. That's why your files can be received and seen only by the people with whom you share your private secret.

Where can I get the latest version of BitTorrent Sync User Guide?

- Since BitTorrent Sync is under active development, we constantly add new features to the app and consequently renew the User Guide. The latest version can always be found here.