

Symmetry User Documentation

Version 1.0



Introduction

Symmetry is an application which replicates the birth date, breed, and Express Verified portions of the CCIA database by downloading new changes every night. Applications which support Symmetry can then communicate with Symmetry instead of the CCIA database allowing you to use this information in real time.

Getting Started

When Symmetry is first installed at your place, a current copy of the database will be placed on your computer. Symmetry should be installed on a computer that will always be on and that has access to the internet. Normally this will be a server of some type. It can coexist with other applications on the server.

The first time Symmetry is launched, the Preferences window will automatically open. You will need to change the preferences to suit your situation and then start the APIs that you will be using in the Console window. From then on there isn't anything you need to do to keep Symmetry going unless it runs into errors and needs help.

Preferences

You can open the Preferences window by choosing the Preferences menu item under the Edit menu on Windows or the application menu on OS X. This window has a number of areas or panes which can be selected via the list on the left hand side.

CCIA. This area is where you enter your CCIA account information. This is needed for Symmetry to download new information from the CCIA database each night. You can also determine the time of night that this download occurs if you want.

As is noted in the instructions on this pane, you will need the BD Replication WS and Breed Replication security options turned on for your account. If this is not already the case, you will need to contact the CCIA to have them do this.

There is also a button to allow you to test your account. It is advisable to do this when you enter

your account information the first time to make sure it is correct and that the security options are turned on.

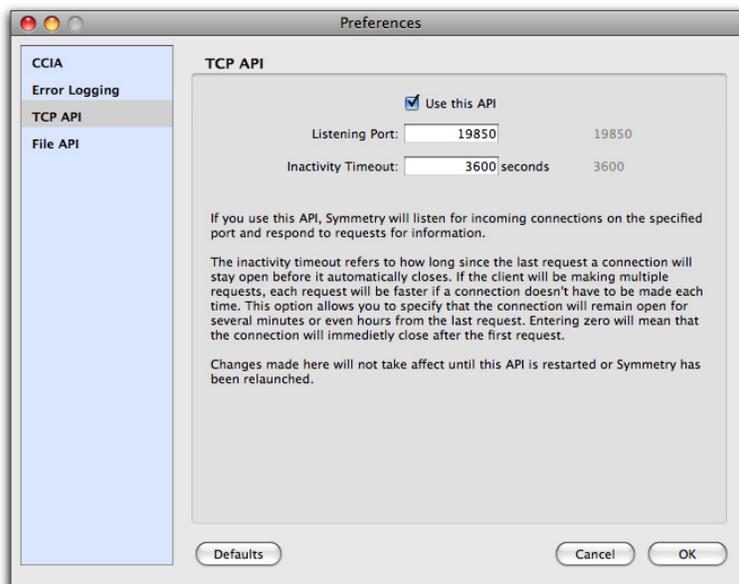
Error Logging. Because Symmetry normally runs in the background, it can't notify you of errors in the same way most applications do. Instead, when an error occurs two or three things happen. First, a special sound will play. Of course, this is only helpful if you are near enough to the computer Symmetry is running on to hear it. At the same time, the error is logged and can be viewed in the Console as explained later. Finally, you can optionally ask Symmetry to email you when it encounters an error. This is good idea, especially if you won't be checking on it very often as is normally the case.

This pane is the place where you enter your email account information is you want Symmetry to send you an email when it encounters an error. If you do not know this information, you can get it from your email provider. Please note that Symmetry does not support SSL email accounts.

A button is provided for testing your account information.

TCP API. If you have applications that will be communicating with Symmetry via the TCP API, you will need to turn this API on in this pane. You can also change the listening port and inactivity time out if necessary.

Depending on how your firewall(s) are set up, you may need to open up the port that Symmetry is listening on. If TCP traffic for that port cannot get to the machine that Symmetry is running on, Symmetry will not be able to respond to any requests.



The inactivity time out tells Symmetry how long to wait before automatically closing a connection with no traffic on it. Normally the applications communicating with Symmetry will close the connection when they are finished making requests. However, if something happens where this is not possible, Symmetry will eventually close the connection anyway to avoid wasting resources.

Please note that turning the API on or off in the preferences is only changing the default state of this API when Symmetry is launched. If you want the API to start or stop immediately, use the Console window.

File API.

Similar to the TCP API, you can decide whether Symmetry will use the File API and what its options will be in this pane. You select the folder that Symmetry will watch for requests in as well as how often the folder is scanned.

If you ask Symmetry to wait for zero seconds between scans, it will still wait for about one quarter of a second between scans. If you need faster response than this, you should consider using the TCP API instead as it can handle hundreds of requests per second with no delay between requests.

As with the TCP API, turning this API on or off here is only affecting the default upon launch. Use the Console window to force it to start or stop immediately.

Console Window

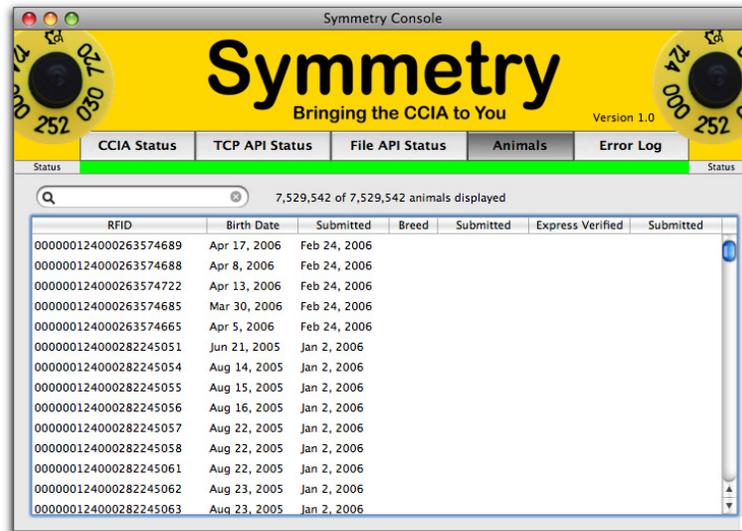
The Console is Symmetry's main window and is always opened upon launch. If you close it, you can open it again by choosing Console from the File menu.

There are five areas in this window and you can move between the areas by clicking on the buttons near the top of the window. Underneath each of these buttons is a status light. If everything in the area is okay, the light will be green. If there is a problem that needs your attention, the light will turn red. This makes it easy to verify that Symmetry is working correctly at a glance. The two API status lights actually have three states they can be in. If the API is on and working correctly, it will always be green. However, if the API is not on, its color will depend on whether the API is supposed to be on by default (as set in the preferences). If it is supposed to be on, then it will be red signifying an error. If it isn't supposed to be on, it will be yellow signifying that it isn't running, but that that is okay.

CCIA. This area is used to let you know if Symmetry's database is up to date with the CCIA's database. Normally this will let you know that Symmetry is up to date and give you the date and time of the last download. However, if it is not up to date, it will give you a message relative to this and other information to help determine why it is not up to date.

TCP API Status. This area shows what is happening with the TCP API. The top portion shows whether Symmetry is currently listening with this API and, if so, what IP address and port it is listening on. You can also start or stop Symmetry from listening. Note that if there are live connections when you tell Symmetry to stop listening, this will not affect the live connections. It will only prevent new connections from being made.

The bottom portion of this area shows the current connections being handled by the API. You can click the Refresh button below the list to have the list updated, or you can check the Auto Refresh checkbox to



have it update automatically. You normally don't need it to auto refresh this information unless you are testing for something. Auto refresh mode will slow Symmetry down if the API is handling multiple requests per second.

For each connection you can see the IP address of the connecting computer, the date and time the connection was made, the date and time of the last request, and the number of requests the connection has handled.

If you want to force a connection to close, you can select it and click the Stop Selected Connections button.

File API Status. This area shows the status of the File API and allows you to start and stop this API. If Symmetry is currently watching a folder, the folder being watched and how many requests have been handled are shown.

If you ask Symmetry to stop watching the folder while it is in the middle of a scan, it will finish the scan before actually stopping.

Animals. Occasionally you may want to look up an RFID manually. This area allows you to enter an RFID number in the search field and see the information Symmetry has for that number.

When you click the magnifying glass in the search field, you can choose how Symmetry will look for matches based on the RFID number you enter. Leaving it as Is Exactly will always be the fastest search. The other options can take several seconds to return any results.

Note that this area requires you to enter a normalized RFID number. For example, if you have a tag number with the country code as letters in it, the correct tag will not be found unless you enter the numeric equivalent (ex. Canada's code is CAN which equates to 124). This is only the case in this area—the APIs normalize numbers automatically.

Clicking the little "x" in the search field will clear the search and show all the animals again.

Please note that Symmetry is only aware of RFID numbers that have had a birth date, breed, or Express Verified status (<http://www.expressverified.ca/>) attached to them.

The list of animals shows the full RFID number as well as the birth date, breed, and Express Verified status for each animal. In addition, the date that each piece of information was submitted or last changed is also shown.

Error Log. As explained earlier, when errors occur they are logged and optionally emailed. Logged errors are shown here. When errors are first logged they will appear in the list in red. After you have reviewed the error and fixed it, you should select it and click the Clear Selected Errors button. Cleared errors appear in black if you have elected to show them. Normally they do not show up at all.

Selecting an error shows the entire error message below the error list.

Shutting Down Symmetry

During normal operation, Symmetry should always stay running. This is especially important because Symmetry is only allowed to download changes from the CCIA database at night and only for the last fourteen days. Thus, if Symmetry does not run at night for that amount of time, the database will not be up to date and you will need someone to come and reinstall Symmetry on your machine again.

However, there are times when you need to temporarily shut Symmetry down for some reason. The safest way to do this is to first stop any APIs that are running. You can close the TCP API connections as well, if necessary, although this may cause errors in the communicating applications.

At this point it is safe to choose Quit from the File menu (Windows) or the application menu (OS X). As soon as possible, relaunch Symmetry by double-clicking the Symmetry shortcut on the desktop (Windows) or double-clicking the application itself (OS X).

The APIs

An API (application programming interface) is a way of allowing different applications to work together. Symmetry has two APIs—TCP based and File based—that other applications can use to ask Symmetry to give them information about RFID tags. Symmetry's job in this relationship is to keep its data in sync with the CCIA database and to respond to requests.

Any application (including multiple applications) can communicate with Symmetry as long as it adheres to the API. Symmetry's API is described

in the “Symmetry API Reference” document which is available to anyone who wants it. It is a very simple API and, other than the communication layer, is exactly the same for both APIs.

The TCP API is based on network communications and is generally the preferred API to use. However, the File API is based on the file system and can be easier to use in some situations.

If you would like to make the necessary changes to your application to communicate with Symmetry, feel free to contact us for more information.

Folder Structure

When Symmetry is installed on your computer, a folder named Symmetry will be placed in your user account's documents folder. The actual name of this folder varies depending on which of the supported operating systems you are using—Windows XP, Windows Vista, or Mac OS X.

Inside this folder there will be a Symmetry Application folder, a Symmetry Data folder, and, possibly, Symmetry Preferences and Symmetry Log folders. It is important not to move or change any level of this folder structure.

During an upgrade, you will normally download a zipped file which you will need to unzip. On Windows you do this by right-clicking the file and choosing Extract. On OS X, simply double-click the file. After unzipping you will be left with a folder called Symmetry. This folder needs to be moved inside the Symmetry Application folder mentioned above to replace the old folder. Only do this when Symmetry is not running.