Drop Catching Script - Overview

Drop catching (often called 'backordering' by registrars) is the process whereby you register a domain that a previous owner has let expire the millisecond it becomes available.

The UK Domain name registrar, Nominet have a somewhat strange method of releasing domain names that have been suspended due to non-payment of renewal fees.

Further information can be found at http://registrars.nominet.org.uk

The aim is to produce a script or more likely group of scripts that we can easily install onto any cPanel based webserver. Which once installed will produce a web-accessable, password protected site that can monitor and catch UK domain names.

We wish to be able to setup a number of these so the installation needs to allow for the entry of all unique details.

Below is a reasonably detailed outline as to how the script should work and be laid out along with details on additional functionality and database use.

This is not a full background on the Nominet domain name expiry process, but any other information required is available online. It is likely that during the development a number of questions will be asked that may or may not lead to increased levels of functionality in the user and domain database sections, you should allow for this in your quote.

We want a system that can be used by us to catch expiring UK domain names, and a secondary system that can be used by registered users for the same with restrictions.
We want to be able to check and store the details of every domain name checked for our own use, we want to be able to sort, search and export these lists.
We want to create a 2 private databases of UK Domain names, Registered before 1996 and Registered after 1996, with expiry dates, these databases cannot be accessible by users.
We want to produce a list of domain names that are about to drop on a daily basis for a period extending to a month ahead, we need to be able to restrict the number of domain names shown to Level 0-8 users.
We want to be able to set the costs for a "catch" dependant on the user.
We want to be able to offer both free and paid accounts.
We would like to be able to "test" the Nominet system to more understand the method behind expiring domain names.
We would like to be able to adjust the number of DAC requests made per second as an when required.

Domain Catching Background Information on Settings, Features and Pages

DAC = Domain Availability Checker (Nominet System)

Paypal and PayPoint as the User Catch Payment methods, and for monthly billing.
Newsletter System needs to connect to Mailchimp to build the list and distribute the mailshot.

Potentially 9 Million .co.uk domain names exist.

Internal User Name Numbering - Server Setup

User Level - 0 - No Access / Contact Admin
User Level - 1 - Free User - Catching & 1 Day List - Pre-Pay Per Catch (100% Catch Cost - 5 Queue)
User Level - 2 - Paid User - Catching & 7 Day List - Pay Per Catch (75% Catch Cost - 10 Queue)
User Level - 3 - Paid User - Catching & 30 Day List - Pay Per Catch (75% Catch Cost - 30 Queue)
User Level - 9 - System Administrator

Domain Database(Post 96) (Every domain name checked goes on this list)
Domain Database(Pre 96) (Every Pre-96 domain name found goes on this list)
Domain Search by Keyword or Domain Name

User Database
First Name, Last Name, Company Name, Company Address, Contact Email Address, Paypal Email Address, VAT Number, User Access Level, Telephone Number

User Level - 0 - No Access
User Level - 1 - User Admin, Droplist (1 Day), Catch Page
User Level - 2 - User Admin, Droplist (7 Day), Catch Page
User Level - 3 - User Admin, Droplist (30 Day), Catch Page

User Level - 9 - System Admin, User Admin, Droplist (1,7,30,All), Catch Page, Algorithm Testing Page, Speed Testing Page, Pre-96 Page, Domain Finder, Domain Database Page

Administrator Area 1 - System

This section is where the server administrator will set all the system specific details for their account. Each will require a submit button for saving the user inputted data. This will need to be stored in a database for use by the server.

Server Administrator User Settings

-System Server IP Address
-Admin Username / Password Entry / Change
-Admin Email Address Entry / Change
-Mailchimp User / API Access Details for Newsletter
-Paypal Payment Receive Email Address Details
-Paypoint Payment Gateway Settings
-Client User Login Lockout after X Attempts Settings (3)

Administrator Area 2 - Nominet

This section is where the server administrator will set all the user specific details for accessing their Nominet registrar account. Each will require a submit button for saving the user inputted data. This will need to be stored in a database for use by the server when checking and registering domain names.

Nominet Settings

-Nominet User ID, Password, API Keys, TAG
-Days from Suspension to Drop
-DAC Server Address
-DAC Server Port
-EPP Server Address
-EPP Server Port
-WHOIS Server Address
-WHOIS Server Port
-WHOIS2 Server Address
-WHOIS2 Server Port

Administrator Area 3 - Server Testing

This section is where the server administrator can test various aspects of the server and it's connection to Nominet. This results need to be stored in a database for later viewing.

Server Testing

-Server function check
-Connection to Nominet DAC Speed Test (ms)
-DAC Domain Check Response Time Test (ms)
-Connection to Nominet EPP Speed Test (ms)
-EPP <query> Command Response Time Test (ms)

Administrator Area 4 - System Log

This section is where the server administrator can view log files related to the running of the server.
This results need to be stored in a database for later viewing.

System Log

-DAC Usage Log (With CAP)
-System User / Administrator Access Log (IP, USER ID, TIME, DATE)
-Catch Script Log
-Database Logs

Administrator Area 5 – Backup / Restore

This section is where the server administrator can backup the databases either automatically or manually.

Backup

-Backup the User Database
-Backup the Pre-96 Domain Database
-Backup the Post-96 Domain Database
-Backup the Server Settings
-Backup Everything

Restore

-Restore the User Database from a Backup
-Restore the Pre-96 Domain Database from a Backup
-Restore the Post-96 Domain Database from a Backup
-Restore the Server Settings from a Backup
-Restore Everything from a Backup

Administrator Area 5 - Email Templates
This section is where the server administrator can upload the system email templates in PDF Format, these are simply backgrounds for the system and mailchimp emails.

The Standard Template is used whenever a fixed template does not exist.

The Standard Template should be built using HTML / CSS and suitable for immediate use with the Mailchimp Access Keys with no "upload" required. It should have the uploaded logo in the Header and a navigation bar and footer in the same style as the site.

System Email Templates
-Standard Email Template - Upload PDF Background if Required (Sent in all circumstances unless others set)
-Email Confirmation Template - Upload PDF Background (Sent as email confirmation)
-Registration Confirmed Template - Upload PDF Backround (Send once email confirmed)
-Account Closed Template - Upload PDF Background (Send if user account closed)
-Newsletter Template - Upload PDF Background (Used on weekly newsletter)
-System Invoice Template - Upload PDF Background

Administrator Area 6 - Email Texts
This section is where the server administrator can set the system email texts for the various system emails that are sent.

The Standard Template is used whenever a fixed template does not exist.

The Standard Template should be built using HTML / CSS and suitable for immediate use with the Mailchimp Access Keys with no "upload" required. It should have the uploaded logo in the Header and a navigation bar and footer in the same style as the site.

System Email Texts
-Forgotten Password Email Text
-Pre-Register Email Text
-You're Registered Email Text
-Sorry Your Leaving Email Text
-Newsletter Email Text - Save Previous - Send
-Level 0 Access Email Text

Administrator Area 7 - User Details
This section is where the server administrator can view and edit the client user accounts.

Client User Details
-Client User Search
--Client User Data Editable - (Level 0-3)
--Previous Catch Attempts (Success or Fail)
--Current Catch Queue
--Previous Invoices/Payments
--Pre-purchased "Catch" Credits

Administrator Area 8 - User Settings
This section is where the system administrator can set the default membership levels.

Client User Level Settings Page
-Client User Level Settings
--Level 1 - Membership Cost - Subscription Cost / Catch Cost / Max Queued Catches / Drop List Days
--Level 2 - Membership Cost - Subscription Cost / Catch Cost / Max Queued Catches / Drop List Days
--Level 3 - Membership Cost - Subscription Cost / Catch Cost / Max Queued Catches / Drop List Days

Administrator Area 9 - Domain Catch Settings
This section is where the server administrator can set details relating to the procedure for catching domain names.

Catch Settings Page (Defaults)
-Turn Catching On/Off
-Catch Priority Table (A-E, using a Max Requests/Second System)
-Add Domain to Catch > Check Drop Date > Add to Catch System
-Max Requests/Second (432,000/domains for catching/24hours)
-Catch Start / End Time (00:00.00-23:59.59)
-Catch Priority Levels
--Catch Priority A - Catch Cost / Resources Allocated / User Level Requirement
--Catch Priority B - Catch Cost / Resources Allocated / User Level Requirement
--Catch Priority C - Catch Cost / Resources Allocated / User Level Requirement
--Catch Priority D - Catch Cost / Resources Allocated / User Level Requirement
--Catch Priority E - Catch Cost / Resources Allocated / User Level Requirement

Administrator Area 10 - Algorithm Testing
This section is where the server administrator can set details relating to the procedure for testing the Nominet system.

Algorithm / Pattern Testing Settings
-Max Domains checked from dailydrop list (1000)
-Max Requests/second (5)
-Turn On / Off (Off)
-Test Start / End Time (00:00.00-23:59.59)
-Email Address to send Test Results (CSV)
-Test Results Filename Save - (CSV)
-View Results Page (Daily - Formatted)

Administrator Area 11 – Dropping Domain Finder
This section is where the server administrator can search the Nominet database for dropping domains using the DAC in an automated fashion.

Domain Finder Page (Add to Pre-96/Droplist)
-Enter Individual Name - Check DAC - Add to Droplist Database
-Enter List of Names - CSV - Check DAC - Add to Droplist Database
-Upload CSV file of Domain Names - CSV - Check DAC - Add to Droplist Database
-Enter List of Words - Append .co.uk - Check DAC - Add to Droplist Database

Administrator Area 12 - Drop List Domain Database
This section is where the domain database(s) can be viewed.

Database Pages
Droplist Database(Post 96) (Keep Next 30 days only)
-Domain Name - Registered Month/Year - Expires - Status - Drop Date (Calculated)

Droplist Database(Pre-96) (Keep only those Suspended)
-Domain Name - Status - Registered - Expires

Administrator Area 13 - Pre 1996 Registrations
This section is where the pre-1996 domain database(s) can be viewed.

Pre-1996 "Suspended" Domain Name Settings Page (Pre-96 List)
-Turn On/Off (On = Max Checks/Second / Domains on List / 24 Hours)
-View Pre-1996 List
-Download Pre-1996 List as CSV
-Enter Individual Name to Pre-1996 Domain Name to Pre-96 List - Check
-Enter List of Pre 1996 Names to Pre-96 List - Check
-Upload CSV file if Pre 1996 Names - Check

User Area 1 - Drop Lists
This section is where the drop lists can be viewed.
i.e. Domains that we know are going to be available to register on a particular day in the future.

Droplist Page
-View Droplist(s) by Day - Add individual Domain to Catch List - Priority A-E Choice
-Download Droplist(s) by Day, Month, Year, Complete (CSV)

Domain drop cycles

When you register a domain and fail to renew it by it's expiry date it is not automatically deleted. Instead, it enters a redemption period of 30 days.

If you do a whois search of a domain which is in redemption period it will simply state "renewal required".

Following this period, if it has not been renewed it becomes suspended pending deletion for a period of 60 days when the whois record will additionally state the following:-

> *** This registration has been SUSPENDED. ***

Following the end of the suspension period domains are usually dropped after a few more days.

Although there can be some variation in drop cycle times it is typical for UK domains to be deleted between 92 and 99 days after their original renewal date making it possible to predict (with a reasonable degree of certainty) the 24 hour period in which a domain is likely to drop.

On the envisaged drop date the catching software (via DAC – the Domain Availability Checker) will poll Nominet continually throughout the day at split second frequencies and then immediately attempt to register a name as soon as it drops using the EPP System.

Drop Catching Script - Method

The Nominet registrar systems are setup to allow EPP (Extensible Provisioning Protocol) communications using XML.

More information is available from:

http://registrars.nominet.org.uk/registration-and-domain-management/registrar-systems/epp

1. Query the DAC for domain availability
2. If the domain is available, send EPP create request

There are at least 20 other "catchers" in the UK, so any script written needs to run as fast as possible.

The idea being that the script will repeatedly query the DAC for domain availability, many times a second, then immediately send a <create> request when the DAC returns that the domain is available.

As a guide, the time taken between an actionable domain name Query to the <create> request via EPP needs to be in the order of 1-5ms.

Drop Catching - Front End

There needs to be a front end to this, with 2 unconnected pieces.

Piece 1 - Setup a "Catch"

Domain Name entry box with a submit button.

When submitted the script will query the DAC for availability and return the following from the WHOIS:

Registered Name, Date of Registration, Date expected to Drop: (Calculated)

"Catch" this domain button.

When the "Catch" button is pressed the domain name is added to the script for catching on the Drop Date.

The Catch Process

On the day the "Catch" is scheduled the script will query the DAC for availability.

There needs to be a page for "settings" regarding resources on a "by domain" basis as there are a limited number of queries available as per the "Acceptable Use Policy.

http://registrars.nominet.org.uk/registration-and-domain-management/acceptable-use-policy

- o   Max 4 simultaneous connections.
- o   Max 1000 queries/second (Rolling 5 second check)
- o   Max 432,000 queries/day (Rolling 24 hours)

Settings required:

- o   Date/Time to start querying the DAC
- o   No of queries/second
- o   Total number of queries/domain

Piece 2 - Finding dropping domains

A script to check the WHOIS2 data base and return Registered Name, Date of Registration, Date of Renewal and Expected Drop Date.

(Max 100,000 daily searches)

This data needs to be saved in a database for display on a date-by-date basis for use as a "Drop List".

The ability to add lists of words which the system then appends ".co.uk" onto and submits to WHOIS2.