CARC PAYPAL INTERFACE



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# Introduction

The CARC website is currently hosted on a DreamHost server. The server hosts the HTML5 code used to implement the web pages, as well as a MySQL database of CARC members.

For reasons of having a source for managing payments, the Dreamhost Account is currently being billed to AI6BB. A statement of website charges is submitted to the CARC Treasurer annually for reimbursement. Dreamhost also manages the Domain Name coastsidearc.org, which is currently set to expire on 2025-02-09.

The PayPal interface is implemented using JavaScript language code. The Front End operates in conjunction with a backend interface to PayPal that makes use of a Node.js server. Although this backend server did perform successfully for some period on the DreamHost site, it was discovered that from time to time that the server was apparently stopped by DreamHost provider because it was operating outside of the service agreement for a Shared Unlimited account. On April 25, 2024, the DreamHost service was upgraded to a VPS server (vps56613) with 1 GB of memory.

Access to the HTML code may be done with a File Transfer Protocol application such as FileZilla. Code development has been done using Microsoft Visual Studio Code, a free code Editor.

Most, if not all, of the HTML code pages have a php extension. This enables a few functions to be implemented on the DreamHost server itself rather that completely in the user’s browser.

The PayPal interface may be accessed using the “PayPal Membership Renewal” Link in the first paragraph, or by clicking on the 3rd menu option, “CARC PayPal”.

This action takes the user to the page <https://coastsidearc.org/www.coastsidearc.org/AppFormPostExample_n6sjf_B.php>. 71% of the volume of text on this page consists of JavaScript code; the remaining 29% is HTML5 code.

**PayPal Dues Renewal Code.php[[1]](#footnote-1) Description**

The page is laid out in the default form used by many of the pages of the website. This format has a header with the W6TOW logo and title image, a menu in the left column, content of interest in the wider right column, and a footer. In this case, there is also a submit button nestled between the right column content and the footer. The description begins with the HTML5 code starting around line 527.

The Title Image is formed with a Python Program that overlays the title text onto the background image. The WA6TOW logo may always be clicked on to return to the home page. The header uses php to include the common header code.

On the left page is a menu of web pages that may be selected. As with the header, the menu uses php code for its invocation.

The next section is the user form, which starts off by describing the dues, and so forth. Proceeding down the form, is a set of checkboxes for selecting the years for which the dues payment will apply. (The year entries in the table must currently be edited annually). When the user selects a given year, the associated checkbox for that year is enhanced with a checkmark on a blue background (or conversely, unchecked). Whenever a year checkbox is checked (or unchecked), the JavaScript function yearsChange is invoked. This function counts the number of checkboxes which have been checked, and places the count determined in the table entry below the box with text “New Member?”. It will display the text “Number of Years checked = “ and the number unless no boxes are checked, in which case the alternative message “At least one Year must be selected” is shown. The JavaScript routine “Amount Change” is then triggered.

The next row of the form is a checkbox which asks the question “New Member Checked?”. If this box is checked, the JavaScript routine “Amount Change” is then triggered. (New member dues are prorated based upon the month in which they apply for membership in accordance with Article V Section 3 of the CARC Constitution and Bylaws).

The next line of the application form requests the call signs associated with the dues calculation. For example, AI6BB and KE6KRT dues calculation will be $20.00 for one membership and $3.00 for each additional member at the same address. As inputs are entered onto this line, the JavaScript routine callsignChange is invoked.

Whenever the JavaScript routine “AmountChange” is invoked, the server Time is placed in the corresponding time slot.

The next line shows the prorata factor. This represents the number of months that will remain on the membership, and will be 12 in January, 11 in February, and so forth. This factor is only used for new memberships.

The next lines contain values calculated whenever the JavaScript function “amountChanged” is invoked.

The next line is the primary dues. This is calculated as $20.00 times the number of years checked. If a new membership is for more than the first year, pro rata is applied to the first year and full year dues are applied to the other years selected.

The next calculation is for the additional family members on the account.

Then the member may donate specific amounts for the Repeater Fund and the Digipeater/APRS funds.

Next, a checkbox is presented as to whether the member wants ti cover the PayPal fee or if they want that fee to be paid by PayPal. The fee is currently $0.49 + 3.49% of the transaction. For a nominal transaction of $50.00, the breakdown is as shown below.

|  |  |  |
| --- | --- | --- |
| **Allocation** | **Amount** | **Formula** |
| Club Gets | $50.00 | Subtotal |
| Total | $52.32 | (Club + FixedFee)/(1-PayPalPercentage) |
| Optional Fee | $ 2.32 | Total - Club |
| PayPal Gets | $ 2.32 |  |

If the club pays the fee, the breakdown is as follows for the same $50.00 nominal transaction:

|  |  |  |
| --- | --- | --- |
| **Allocation** | **Amount** | **Formula** |
| Paypal | $ 2.24 | FixedFee + PayPalPercentage\*Total |
| Club Gets | $47.76 | Total - PayPal |
| Optional Fee | $ 0.00 | Total - Club |
| Total | $50.00 |  |

The AmountChange function builds up a JavaScript dictionary object named jsondict. Jsondict contains the items that form the data structure submitted to the server for processing. This data will be stored in a MySQL table. The MySQL table can be accessed under the username ‘carcuser’ and password available on the DreamHost server. The description of the fields is provided in the following table.

|  |  |  |  |
| --- | --- | --- | --- |
| Json name | MySQL name | MySQL  Type | description |
| N/A | myindex | int | An auto-increment unique index |
| callsign |  |  | Text: The first callsign of the group of call signs |
| callsigns | callsigns | Varchar(50) | Text: the list of callsigns separated by blanks |
| clubreceives | clubreceives |  | Text: The amount the club receives in a transaction |
| date | mydate | varchar(30) | Test: The date/time field of the transaction in the form 'yyyy-mm-dd hh-mm-ss’ |
| digipeater | digipeater |  | Text: The amount to be donated t the digipeater fund |
| family | family |  | Text: The amount, at $3/member/year for family members |
| fullname | FullName |  | Text: The first and last name of the member (as looked up by callsign from the member MySQL table) |
| ncallsigns |  |  | The number of callsigns in the group of callsigns |
| newmember | new |  | Text: ‘yes’ or ‘no |
| pay\_paypal |  |  | Text: ‘yes’ or ‘no’ |
| paypalfee | paypalfee |  | Text: The calculated amount that PayPal gets |
| pp-id |  |  | Text: a unique to each transaction random string of alphanumeric characters, such as d297ca29-cde3-493f-bb4a-804f84b41dff |
| pp\_total |  |  | Float: the total paypal fee as a float |
| primary | primary | varchar(12) | Text: The primary membership fee |
| repeater | repeater | varchar(12) | Text: The amount to be donated to the repeater fund |
| subtotal | subtotal | varchar(12) | The subtotal of dues plus donations |
| total | total | varchar(12) | Text: the total paypal fee |
| transaction\_status | transaction\_status | varchar(12) | One of: ‘pending’, ‘cancelled’, or ‘posted’ |
| years | years | varchar(30) | Text: the list of years for renewal |

As each field for transmission to the PayPal interface is completed, the dictionary variable jsondict, it is bundled up into a JSON string jsonstring. At the time that the submit button is clicked, the primary callsign is submitted asynchronously to the function getFullNameFromMergeTable[[2]](#footnote-2). When the fullName has been retrieved, the full name of the renewing member, along with a unique transaction key and status ‘pending’ is inserted into the MySQL pp\_tnx table. At this time, the data is sent to the function make\_payment on the PayPal node.js interface[[3]](#endnote-1). for recording PayPal transactions, inserts the current transaction and MySQL table. The MySQL table can be accessed under the username ‘carcuser’.

**PayPal app**

The PayPal interface is implemented in the Node.js application (app.js), augmented with express.js.

* Once started, the server runs continuously, since the website is now hosted on a virtual private server(VPS).
* Security credentials (certificates) for the website are good for a period of 3 months but are replaced by DreamHost 60 days before expiration. When the website credentials are changed, Dreamhost sends an email notification to CARC. At this time, the Node.js credentials must be manually updated. The current credentials expire on July 26, 2024, so they will be updated on the website on or about June 26, 2024.

Here is a summary of the processing flow:

* **Client initiates purchase:** The member selects items to be purchased and submits a payment request.
* **Transaction request:** The Node.js server receives the transaction information and uses the pre-configured Client ID and Secret to securely obtain an access token from PayPal.
* **PayPal payment page:** The member is redirected to a secure PayPal interface where they can review the transaction and either:
  + **Complete payment:** Use their existing PayPal account or enter Venmo or credit card information for the purchase.
  + **Cancel payment:** Opt out of the transaction.
* **Payment verification:** PayPal validates the payment based on its risk assessment.
* **Response:** PayPal sends a response back to your server:
  + **Success:** The transaction is approved, and you can fulfill the order. The payment is queued up by PayPal for transmittal to the Club’s bank account.
  + **Failure:** The transaction declined. The member is advised to customer seek alternative payment methods.

**Action Items**

1. Rename the page from “[AppFormPostExample\_n6sjf\_B.php](https://coastsidearc.org/www.coastsidearc.org/AppFormPostExample_n6sjf_B.php)” to “node/paypal\_app”
2. Change the Image text from “Post Example” to “CARC Dues Renewal”.
3. At some point, it may be useful to discuss the basis for the annual dues. When originally conceived, the dues covered expenses such as postage and printing for the newsletter (somewhat off topic).
4. We should update the SQL Merge table to reflect current (May 2024) conditions.
5. Change the background color of the form to clear white.
6. Eliminate the faint green outlines of the page sections
7. Make the year portion (checkboxes) of the table self-updating annually.
8. Does the form need to change based on recent accounting policies agreed to by the membership? (eg: repeater fund, Digipeater Fund, etc.)aa?

1. Currently ‘AppFormPostExample\_n6sjf\_B.php’ [↑](#footnote-ref-1)
2. The Merge Table is a table that was created from the Membership table held by the Secretary. [↑](#footnote-ref-2)
3. [↑](#endnote-ref-1)