

# **College of Commissioner Science Sam Houston Area Council Boy Scouts of America**

**Project report for completion of  
Doctor of Commissioner Science**

## **Commissioner Transcript System**

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## **Background**

For many years, the Sam Houston Area Council (SHAC) has held an annual training event for Commissioners. Up until 2009, the training event was called the "Commissioner Conference." In 2010, the Sam Houston Area Council transitioned to the Commissioner College curriculum to utilize the Boy Scouts of America (BSA) National Council's training curriculum. In doing so, the need for tracking individual trainings toward degree requirements and easy access to those records by individuals became paramount.

The idea of building an online database with a friendly user-interface and a customizable secure administrative area was discussed. I volunteered to take on this project with guidance from other IT professionals and longtime council commissioners.

Historical data had traditionally been organized by Troxel Ballou (2008 Commissioner Conference chair). Troxel kept all of the historical data in MSAccess. As the Commissioner College process was being planned, Troxel Ballou, Stan Stanley (Council Commissioner, at that time), Farrell Gerbode (Assistant District Commissioner) and I agreed that MSAccess was not the best solution. Additionally, it was not easily accessible by the participants to review their transcripts and their future needs. In 2011, we made initial plans to create an online method (a web-based application) to manage the data. Since I had completed my bachelor's and master's degrees at the Atlanta Area Council's Commissioner College in the early 90's, we decided that this would be an appropriate doctoral project. Stan assigned Troxel as my project counselor.

In early 2012, Troxel, Farrell and I met over lunch to develop a doctoral project which would have me build an online database with a publicly searchable interface as well as a password protected administrative interface...the **Commissioner Transcript System (CTS)**. We scoped the project, set milestones, and set a deadline to launch prior to the 2012 Commissioner College.

We met a few more times in 2012 and I continued to write the code and develop the CTS project prior to the 2012 Commissioner College. The CTS was successfully launched prior to the December 2012 deadline and minor updates were made in the years following. At the time, there were no doctoral candidates, so nothing was discussed about applying for the degree and no write-up was requested regarding the completion of the project.

In 2013, Troxel left the Scouting program and Bob Rosensteel (Commissioner College registrar) was tasked with data input for the CTS. I kept the CTS software updated and made yearly improvements, such as allowing users to submit their own updates (e.g. courses taken out of council or at other sanctioned events).

## **Objective and Scope**

### **I. Primary Objective:**

To provide a convenient resource for recording, reviewing, and updating participant data for the Sam Houston Area Council College of Commissioner Science.

### **II. Primary Project Scope:**

#### **a) For the participant:**

- Provide an interface for participants to search their own records; possible options include: searchable by last name, BSA ID (when available), or email address (when available)
- "Completed Classes" listing sheet
- "Commissioner Degree Progress" sheet
- Track dates of class/course completion
- Allow user to set goals for future courses
- (Optional) Provide a form for submitting change requests

#### **b) For the administrator(s):**

- Provide an interface for participant search and all documentation (as listed above) available for every participant
- Form for adding/editing/deleting of participants' data
- Form for adding/editing/deleting course code / name / description
- Review and approve change requests from participants

## **Planning and Execution**

### **Potential Problems**

- Security for over 1200+ individuals:
  - Password protection: It was determined that the system would use encrypted passwords, when passwords were needed.
  - Code injection: Code Injection is the general term for attack types which consist of injecting code that is then interpreted/executed by the application. It was determined that all queries would be handled with a code validator and, if possible, no variables would be sent in a URL string.
- Data loss:
  - Database data and web site code would be put on a daily back-up schedule. At least once a month, database data and web site would be backed up off-site.

### **Development Strategy**

*Initial development:* In 2012, the site was fully developed in the language ColdFusion pulling data from a MySQL database. At the time, ColdFusion was the common language with which I was developing other corporate web applications. The only negative aspect of this language was that it was a commercial language and required a web server which supported ColdFusion, so a web hosting company required an additional monthly licensing fee for the language. I covered the expense of the server from January 2012 until the project was cancelled in early 2018.

*Secondary development:* In late 2018, the council commissioner team (Dan Goetzman and Forrest Bjerkaas) asked me to revive the web site. The former commercial server hosting service had been cancelled and the previous web app no longer existed in an operational state. I took the opportunity to rebuild the site in a non-commercial or open source (free) language. The entire site was rewritten in the language PHP and the database remained in MySQL. The web application currently exists at my domain, ScoutCrest.org dedicated to Commissioner Service and is hosted at HostGator.

The CTS was built in the Bootstrap structure allowing for a uniform view across platforms (Mac, PC, etc.) and browsers.

### **Execution**

The developmental milestones were met and approved in 2012 and the site was launched successfully prior to the 2012 Sam Houston Area Council Commissioner College. Subsequent years saw minor upgrades and development.

## Structure

The table structures are designed as such:

### **Courses: contains all data for courses**

- id.....Tracking number for each course listing
- code.....A 4-digit code for each course
- type.....Designation ACS, BCS, MCS, DCS, or CED
- number .....Course number for each course
- name .....String name describing each course
- hide.....Simple method of removing a course without deleting the data

### **Users: contains all data for users**

- id.....Tracking number for each user
- first\_name.....First name of each user
- last\_name .....Last name of each user
- dob .....Date of birth
- bsaid.....BSA Identification number (when known or submitted by user)
- faststart.....Date of Fast Start Training taken
- basic .....Date of Commissioner Basic Training taken
- comm\_key .....Date of Commissioner Key received
- arrowhead .....Date of Arrowhead Award received
- distinguished .....Date of Distinguished Commissioner Award received
- bcs .....Date of Bachelor of Commissioner Science received
- mcs .....Date of Master of Commissioner Science received
- dcs .....Date of Doctorate of Commissioner Science received
- comments .....Comments as needed
- address1.....User address line 1
- address2.....User address line 2
- city .....User city
- state.....User state
- zip .....User zip
- phone .....User phone
- phone2 .....User alternate phone (optional)
- email.....User email address
- pwr.....User password (encrypted)
- pwr\_salt .....User password encryption salt
- unit\_type .....User unit type (Pack, Troop, Post, Ship, etc.)
- unit\_number .....User unit number
- district .....User district
- council .....User council
- last\_update .....Last update of user information
- admin.....Indicator whether this user is Administrator of site

## Commissioner Transcript System

- hide.....Simple method of removing a user without deleting the data

### **Transcripts: joins data from Courses and Users tables**

- id .....Tracking number for each user
- uID .....ID number for a particular user
- coID .....ID number for a particular course
- type.....(optional) Type of course
- number .....(optional) Number of course
- year .....Year that course was taken by user
- last\_update .....Last update of transcript

## **Post Project Review**

The primary goal for this project was “to provide a convenient resource for recording, reviewing, and updating participant data for the Sam Houston Area Council College of Commissioner Science.” I believe this project has accomplished that mission.

**How did this project improve the previous method?** The pre-2010 records were kept in MS Access. To review your records, you had to contact the person who held the records and ask them for a printout of your records. To enter records, only one person at a time could enter data and the entire database had to be moved from registrar's computer to registrar's computer for multiple people to work on it. The process was extremely limited and time consuming. The centralization of the transcripts made it easier and more spontaneous for users to review their transcripts. Record keeping can be managed by any number of registrars who are given authorization to access the “admin” section of the site. Updates and corrections are made by the registrars in real-time and viewable by the user instantly.

**What problems did I encounter and what did I learn?** The current version of the application is written in PHP with a MySQL database. The majority of problems I encountered were simply minor coding mistakes due to the learning curve as I learned the PHP language having no previous experience with it. I now use PHP daily in my professional life, so I see areas of code in this application which could be written more “gracefully”. Before releasing this to the general public, I will attempt to tidy up those areas of code.

**How can I improve this project?** GitHub.com is a central web site which allows developers a public platform to store their code and also allows other developers the opportunity to submit changes/improvements to the code. I plan to release this on GitHub in the near future to allow other developers the opportunity to copy and launch this for their councils. Releasing the code to the community will also allow other developers to submit enhancements which will ensure that this project grows and lives on without me.

## **Leaving a Legacy**

It is my wish to provide the CTS for future Commissioner Colleges in the Sam Houston Area Council and allow other councils to use the CTS. My plan is to provide the software free-of-charge at GitHub which will allow collaboration by all users through the version-controlling Git.

## Appendix

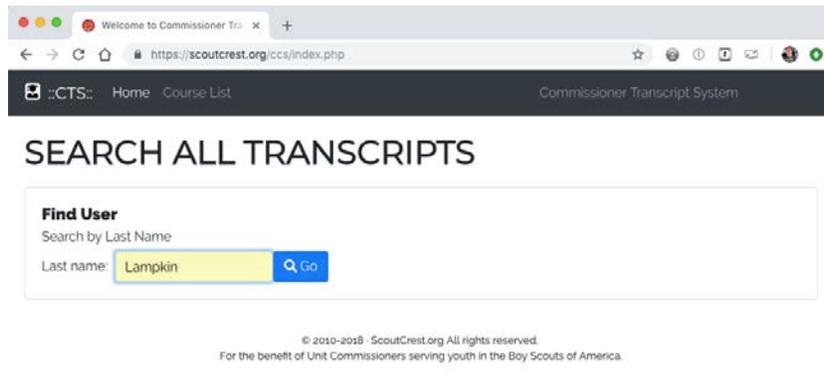
### 1.1 Definitions

These definitions are directly copied from Wikipedia.org.

1. **Bootstrap** is a free and open-source front-end framework for designing websites and web applications. It contains HTML- and CSS-based design templates for typography, forms, buttons, navigation and other interface components, as well as optional JavaScript extensions. Unlike many earlier web frameworks, it concerns itself with front-end development only.
2. **Git** is a version-control system for tracking changes in computer files and coordinating work on those files among multiple people. It is primarily used for source-code management in software development, but it can be used to keep track of changes in any set of files. As a distributed revision-control system, it is aimed at speed, data integrity, and support for distributed, non-linear workflows.
3. **MySQL** is an open source relational database management system (RDBMS). Its name is a combination of "My", the name of co-founder Michael Widenius's daughter, and "SQL", the abbreviation for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for-profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation. For proprietary use, several paid editions are available, and offer additional functionality.
4. **PHP: Hypertext Preprocessor** (or simply PHP) is a server-side scripting language designed for Web development, and also used as a general-purpose programming language. It was originally created by Rasmus Lerdorf in 1994; the PHP reference implementation is now produced by The PHP Group. PHP originally stood for Personal Home Page, but it now stands for the recursive initialism PHP: Hypertext Preprocessor.

# Commissioner Transcript System

## Front-end (Visitor) View: Step 1 of 2



# Commissioner Transcript System

## Front-end (Visitor) View: Step 2 of 2

The screenshot shows a web browser window with the URL <https://scoutcrest.org/ccs/index.php?uid=545&data=Lampkin>. The page title is "Commissioner Transcript System" and the navigation bar includes "Home" and "Course List".

### SEARCH ALL TRANSCRIPTS

**Find User**  
 Search by Last Name  
 Last name:

**Results:**  
 Click on a name to view transcripts:  
 • [Mike Lampkin](#)

**Current Transcripts for: Mike Lampkin**

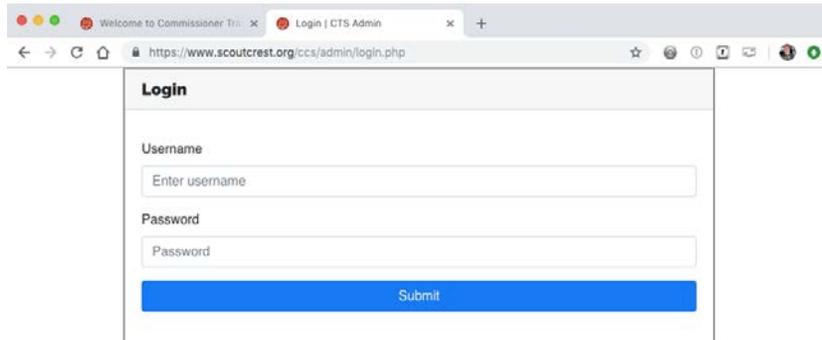
Commissioner Basic:	1990
Commissioner Arrowhead:	05/22/1992
Commissioner Key:	02/05/2006
Distinguished Commissioner:	2007
Bachelor Degree:	09/30/1990
Master Degree:	09/29/1991
Doctorate Degree:	

Course	Description	Year
ACS 102	AD/ADC Training	1991
BCS 101	Core Concepts of Commissioner Service	1990
BCS 102	Unit Charter Renewal	1990
BCS 103	The Commissioner and the District	1990
BCS 104	Unit Visitation	1990
BCS 107	Unit Journey to Excellence	2010
BCS 110	Commissioner Style	2008
BCS 111	Health and Safety Training	1991
BCS 113	Service to New Units	1990
BCS 114	Good Commissioner-Professional Relationships	1993
BCS 115	Commissioners and Diversity	1992
BCS 121	Introduction to Venturing Commissioner Science	1992
BCS 124	Venturing Crew Visitation	1992
BCS 201	Quality Unit Award	1991
MCS 304	Commissioner Lifesaving II	1994
MCS 308	Venturing and the Commissioner	1992
MCS 311	All About ADCs	2010
MCS 312	Recruiting New Commissioners	2010
MCS 317	How to Remove a Volunteer	1993
MCS 321	New-Unit Service	1990
DCS 501	Selecting a Thesis/Project Topic	2010
DCS 502	Limiting the Scope of the Topic	2010
DCS 504	Thesis - Project Workshop	2010
DCS 520	Assessing Council and District Health	2010

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# Commissioner Transcript System

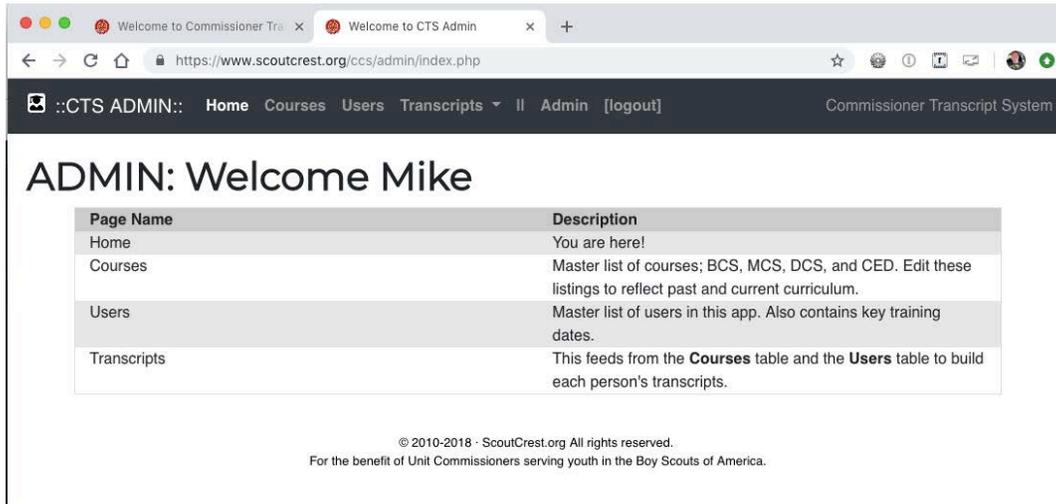
## “Admin: Login” page view



The image shows a screenshot of a web browser displaying the login page for the Commissioner Transcript System. The browser's address bar shows the URL <https://www.scoutcrest.org/ccs/admin/login.php>. The page content is contained within a light gray box with the title "Login". Inside this box, there are two input fields: one for "Username" with the placeholder text "Enter username" and one for "Password" with the placeholder text "Password". Below these fields is a prominent blue button labeled "Submit".

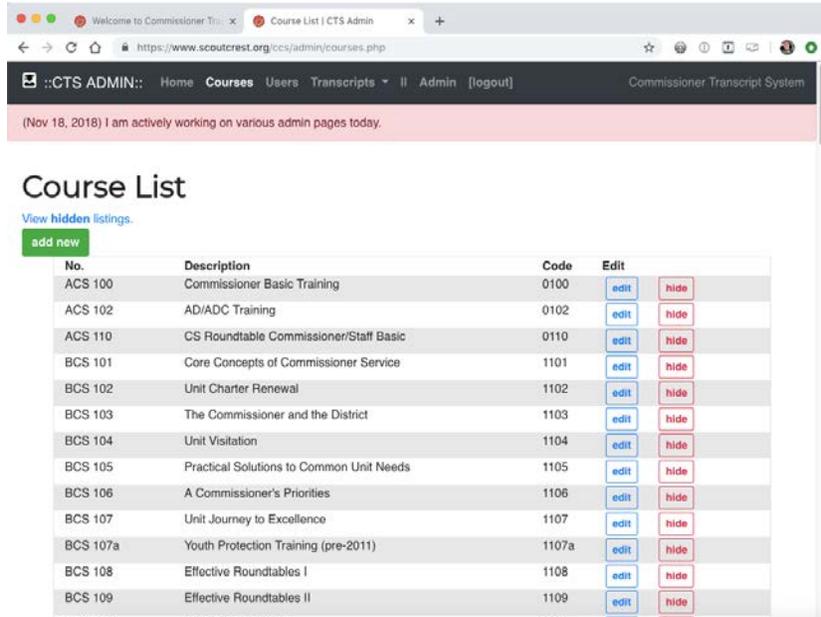
# Commissioner Transcript System

## “Admin: Home” page view



# Commissioner Transcript System

## “Admin: Courses” page view



Course List

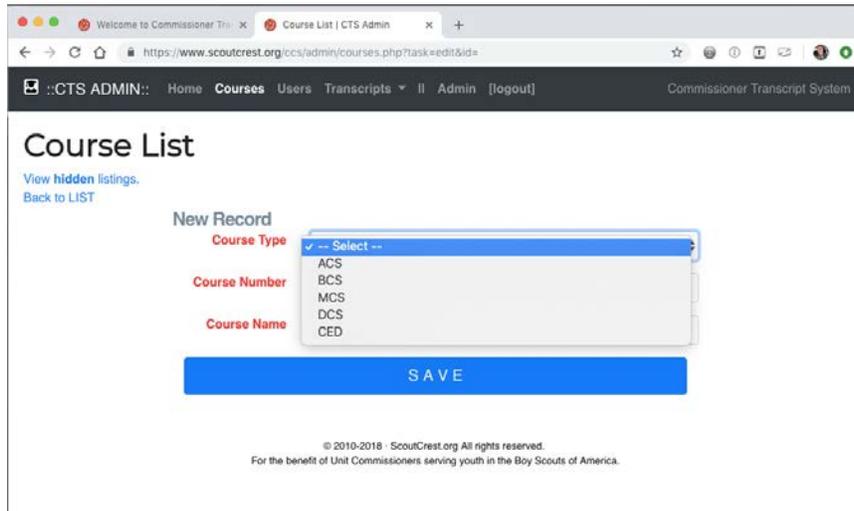
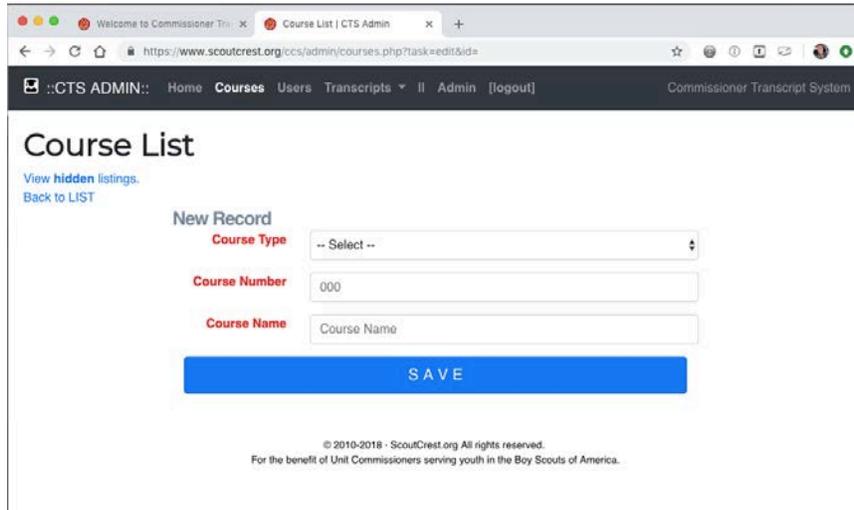
[View hidden listings.](#)

[add new](#)

No.	Description	Code	Edit
ACS 100	Commissioner Basic Training	0100	<a href="#">edit</a> <a href="#">hide</a>
ACS 102	AD/ADC Training	0102	<a href="#">edit</a> <a href="#">hide</a>
ACS 110	CS Roundtable Commissioner/Staff Basic	0110	<a href="#">edit</a> <a href="#">hide</a>
BCS 101	Core Concepts of Commissioner Service	1101	<a href="#">edit</a> <a href="#">hide</a>
BCS 102	Unit Charter Renewal	1102	<a href="#">edit</a> <a href="#">hide</a>
BCS 103	The Commissioner and the District	1103	<a href="#">edit</a> <a href="#">hide</a>
BCS 104	Unit Visitation	1104	<a href="#">edit</a> <a href="#">hide</a>
BCS 105	Practical Solutions to Common Unit Needs	1105	<a href="#">edit</a> <a href="#">hide</a>
BCS 106	A Commissioner's Priorities	1106	<a href="#">edit</a> <a href="#">hide</a>
BCS 107	Unit Journey to Excellence	1107	<a href="#">edit</a> <a href="#">hide</a>
BCS 107a	Youth Protection Training (pre-2011)	1107a	<a href="#">edit</a> <a href="#">hide</a>
BCS 108	Effective Roundtables I	1108	<a href="#">edit</a> <a href="#">hide</a>
BCS 109	Effective Roundtables II	1109	<a href="#">edit</a> <a href="#">hide</a>

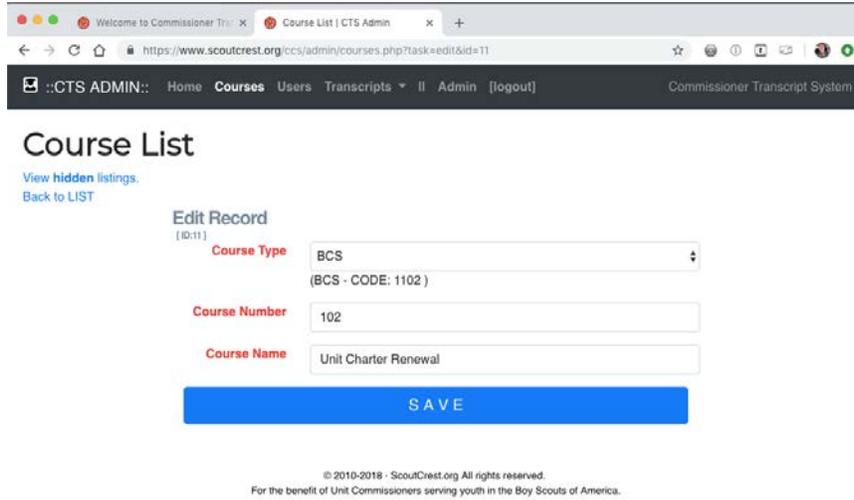
# Commissioner Transcript System

## “Admin: Courses – Add” page view



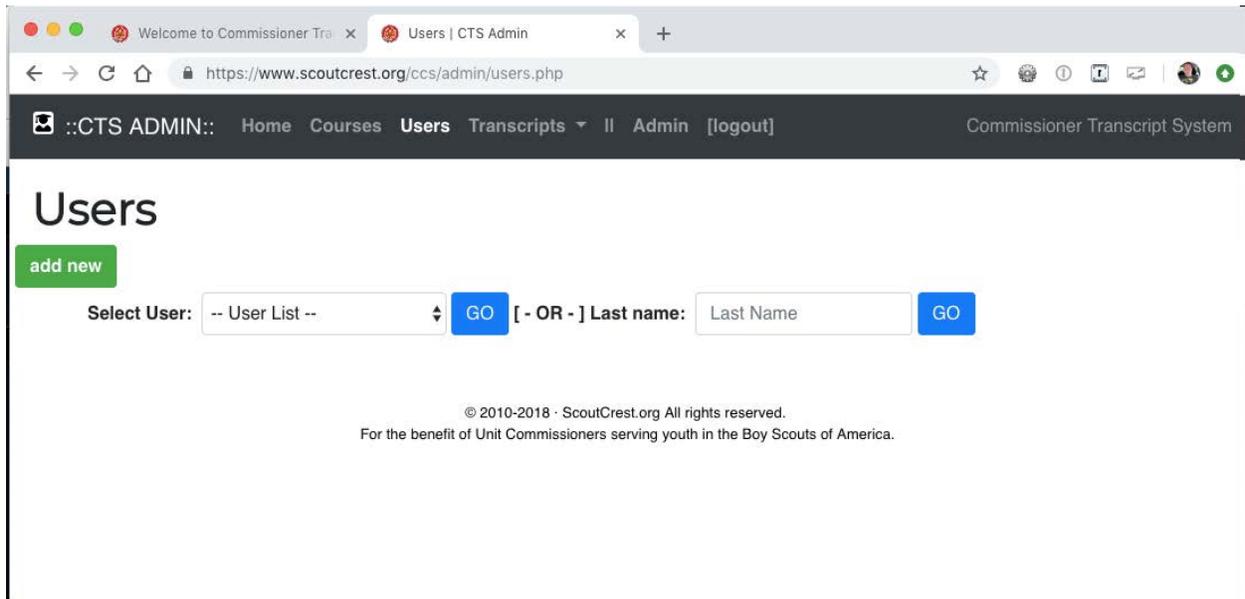
# Commissioner Transcript System

## “Admin: Courses – Edit” page view



# Commissioner Transcript System

## “Admin: Users” page view



# Commissioner Transcript System

## “Admin: Users – Add” page view

Welcome to Commissioner Transcript System

Users | CTS Admin

https://www.scoutrest.org/ccs/admin/users.php

CTS ADMIN: Home Courses Users Transcripts Admin [logout] Commissioner Transcript System

### Users

[add new](#)

Select User:   [- OR - ] Last name:

#### New Record

**First Name**

**Last Name**

**BSA ID**

#### Contact Data

**Email**

**Address 1**

**Address 2**

**City**

**State**

**Zip**

#### Awards Data

**Commissioner Fast Start**

**Commissioner Basic**

**Commissioner Arrowhead**

**Commissioner Key**

**Distinguished Commissioner**

**Bachelors Degree**

**Masters Degree**

**Doctorate Degree**

#### Login Data

**Admin Type**

**Password**

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# Commissioner Transcript System

## “Admin: Users – Edit” page view

Welcome to Commissioner Transcript System

Users | CTS Admin

https://www.scoutrest.org/ccs/admin/users.php

CTS ADMIN: Home Courses Users Transcripts Admin [logout] Commissioner Transcript System

### Users

[add new](#)

Select User: Lampkin, Mike  [- OR - ] Last name: Last Name

**Edit Record [ ID:545 ]**

**Personal Information**

First Name: Mike

Last Name: Lampkin

BSA ID: 2388962

**Contact Data**

Email: mike@lampkin.net

Address 1: 17211 Rookery Ct

Address 2: Address 2

City: Conroe

State: Texas

Zip: 77385

**Awards Data**

Commissioner Fast Start:

Commissioner Basic: 1990

Commissioner Arrowhead: 05/22/1992

Commissioner Key: 02/05/2006

Distinguished Commissioner: 2007

Bachelors Degree: 09/30/1990

Masters Degree: 09/29/1991

Doctorate Degree:

**Login Data**

Admin Type: Super

Password: .....

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# Commissioner Transcript System

## “Admin: Transcripts by User – Edit” page view

The screenshot shows the 'Transcripts by Users' page in the CTS ADMIN system. At the top, there is a navigation bar with 'Home', 'Courses', 'Users', 'Transcripts', and 'Admin' menus. Below the navigation, the page title is 'Transcripts by Users'. There are search fields for 'Select User:' (with 'Lampkin, Mike' selected) and 'Last name:' (with 'Last Name' entered). A 'GO' button is next to each field. Below the search fields, there is a section titled 'Edit Transcripts [ID:545]' with the user's name 'Mike Lampkin' and a 'SAVE' button. The page is divided into two main sections: 'Awards Section' and 'Class Section'. The 'Awards Section' contains a table with columns for award type and date. The 'Class Section' contains a table with columns for Row, Code, Course, Name, and Year. A blue arrow points to the 'Class Section' table.

**Awards Section**  
Enter year or full date. (Highlighted rows are simply colored to ease visual search.)

Award Type	Date
Commissioner Fast Start	09/29/2008
Commissioner Basic	1990
Commissioner Arrowhead	05/22/1992
Commissioner Key	02/05/2006
Distinguished Commissioner	2007
Bachelors Degree	09/30/1990
Masters Degree	09/29/1991
Doctorate Degree	

**Class Section**  
Enter year or full date.

Row	Code	Course	Name	Year
1	0100	ACS 100	Commissioner Basic Training	
2	0102	ACS 102	AD/ADC Training	1991
3	0110	ACS 110	CS Roundtable Commissioner/Staff Basic	
4	1101	BCS 101	Core Concepts of Commissioner Service	1990
5	1102	BCS 102	Unit Charter Renewal	1990
6	1103	BCS 103	The Commissioner and the District	1990
7	1104	BCS 104	Unit Visitation	1990
8	1105	BCS 105	Practical Solutions to Commissioner	
9	1106	BCS 106	A Career Communication	
10	1107	BCS 719	The Art of Listening	
129	9720	CED 720	Valuing Diversity - Introduction	
130	9721	CED 721	Valuing Diversity - Generation X	
131	9723	CED 723	Reaching the Next Multi-Cultural Generation	
132	9724	CED 724	Men and Women - Different Not Better	
133	9801	CED 801	Commissioner Tools	
134	9804	CED 804	Detailed Assessment Commissioner Tools	
135	9999	CED 999	Post-Doctoral studies	

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“Admin: Transcripts by Course – Edit” page view

Transcripts by Course

*This page will insert a new transcript for participants who have never taken this course and will update the transcript for participants who are retaking this course.*

Select Course:

---

**Classroom [ID:8]**

**BCS 110 (Code: 1110)**

*You can add up to 10 participants of this course with this page. You can add more once this group is saved.*

Class Date:

Participant 1:

Participant 2:

Participant 3:

Participant 4:

Participant 5:

Participant 6:

Participant 7:

Participant 8:

Participant 9:

Participant 10:

Participant 11 [NEW ONLY]:

Participant 12 [NEW ONLY]:

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