Chapter 6.

Solid Security

Don’t let the snoops into your data…

Don’t let just anyone get to your good stuff. Alpha Anywhere has solid security that gives access to the right people and keeps the bad guys out.

Security groups with component and page assignments let you design a system that will meet your requirements. It’s easy once you know how and we explain everything and even give you a checklist so you don’t forget anything.

What you'll find here…

How the material is organized

WHO NEEDS THIS?

It's hard to imagine a web or mobile application without some form of security, so this chapter is a big deal for both. Security for desktop applications is done differently, so this type does not apply there.

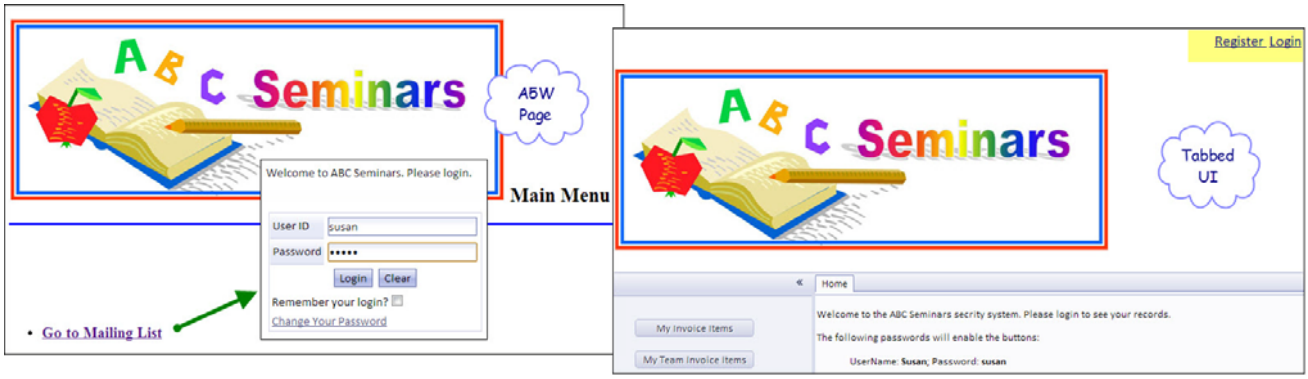
We'll start with an overview of the security system, but before we dig into the configurations, we'll learn another basic skill. I'm all about saving time and not redoing work unnecessarily, so we will copy some items that we created in earlier chapters into a new project.

Then we will show how to configure security for all the various types of files in a project. In the beginning, it is a bit tricky because quite a few actions need to be implemented in a certain order. Also, there are many situations where one option is dependent upon another.

Once you understand how the security framework operates, you will be ready to implement it at run-time. This multi-part section takes you through registering new users and editing exiting security data online. It also shows how to set up a table with fields that can be used in other parts of the application, such as creating an ID and filtering data that can be viewed by the logged in user.

While originally developed for web applications (as far as we know, mobile devices were not even a glimmer in Steve Jobs' eye in 2006), the security system is fully applicable to mobile apps. Once you understand how it works in the Grid, we will take you to the UX component so you can see how it can be set up there.

We will create three login examples. The first demonstrates page and component security. The second takes advantage of the built-in registration and login settings of the Tabbed UI. The third shows mobile application setup.



Since security setup has several steps, we have provided two outlines.

- The basics are on page 242.
- A checklist is on page 326.

IMPORTANT REMINDER

The vital fact is that if you put **ANYTHING** on the web, it can be seen by **ANYONE** unless you take the proper steps to protect it. You can trust the Alpha Anywhere Security Framework to do just that.

Understanding Alpha Anywhere Security

With Alpha Anywhere, you can set up a state of the art web and mobile application security system with just a few clicks.

The following description of system implementation is from the transcript of an interview of Jerry Brightbill, Senior Developer and Architect at Alpha Software, Inc., with Alan Ashendorf, host of the *Let's Talk Computers* radio talk show.

FOR OUR PROGRAMMING FRIENDS

"Because it was built into the Server System, every page, every file request—and that includes JavaScript files, CSS (Cascading Style Sheets) files, images—all of them are checked against the Security. When Security is checked, a couple of things are loaded into memory from the server.

- We load a list of all the pages that are available.
- We load in all the Security for those pages.
- We can set Security for each page or we can set Security by File Type. For instance, we can allow all JavaScript files. What happens when a page request comes in, if you have a page that has JavaScript, Style Sheets, or images, every single one of those components is checked against that Security.
- And because it is built into the Server System, there is no way to get around it.
- So, every File Request that comes in is checked against the Security, automatically, in the background."

FOR THE REST OF US

"The Security System in the server is already built into the server; that's automatic.

- It's turned on and off by [two simple check boxes]. *
- All the supporting code is pre-written so that it doesn't require the user to write anything.

In fact, to apply security is very simple."†

And we'll go a step further by saying it is so simple that even a non-programmer can do it. And, if you are a programmer, the world is your oyster because the definition options are almost endless. Of course, there's no surprise there –

"After all, this is Alpha Anywhere — what did you expect?"

*. In his transcript, Jerry actually said "It's turned on and off by one simple check box." Technically, that is true— once security is enabled, you only have to check or uncheck Web Projects Control Panel > Web Security > Web Security Configuration > Security Active. But, in order for it to work in the first place, the Security Framework must also be enabled (Top Menu > Web > Application Server).

†. Brightbill, Jerry; http://www.alphasoftware.com/press/letstalkcomputers/alphafivewebsecurity.asp. December 30, 2006. You can also go Google *Alpha Five Version 8: Web Security Framework—Right From the Start.* We recommend everyone read the full text of this excellent review. While written for web applications, it is also applicable to mobile apps.

—Bullets and other formatting added. SHB

Preparation for the lesson

A Web Project named **MailListSecure** has finished examples of the *Web Component* and *A5 Web pages* used in this chapter.

Borrowing files for a new project

LESSON SET-UP

We have a bit of work in order to get ready for the Security exercises.

- First, we will create a new web project and place copies of two existing pages, a grid component and an image into it.
- Then, we will rename the pages and the web component.
- We will finish up by updating the link on the Main Menu page.

Needless to say, this has nothing to do with security. **BUT,** it is an exercise we think you'll find useful.

1. *Web Projects Control Panel*: click **New Project**.
2. Choose **Start a new empty Project**. (Click OK)
3. *Project name:* Enter **MyMailListSecure**. (Click OK)

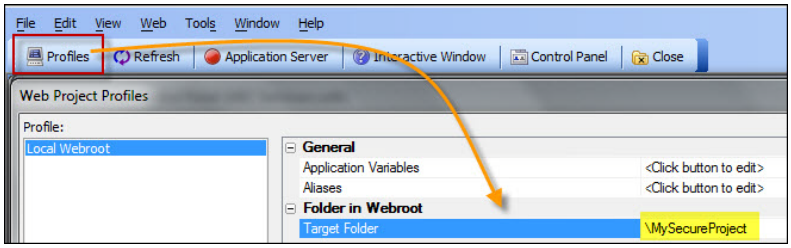
Understanding Target Folders

A target folder helps Alpha Anywhere keep things sorted out properly. It is defined in the Profiles dialog and becomes a sub-folder of the main webroot folder.*

ALWAYS DO THIS!

Target folders are recommended for ***every*** project.

Alpha Anywhere will create the folder when the project is published after we define it in the Profiles dialog.



4. *Web Projects Control Panel:* Click the **Profiles** button on the upper toolbar.

Dialog Title: Web Project Profiles

a. *Folder in Webroot > Target folder:* Type **\MySecureProject**.

5. Click OK to return to the *Web Projects Control Panel*.

Adding existing pages to a web project

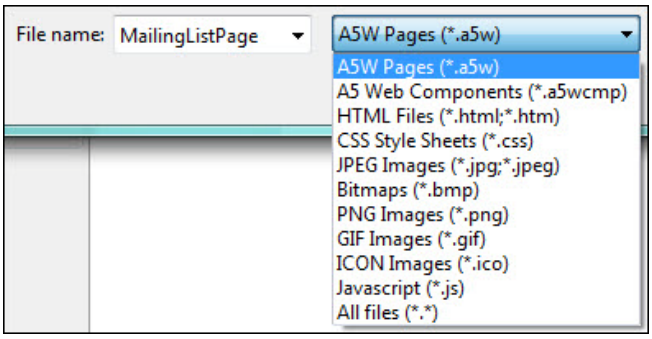
We will use the sample files, rather than the ones we created earlier, so that everyone is on the same page.

PROJECT: MY MAIL LIST SECURE

6. *Web Projects Control Panel*: Click **Add File**.
7. Navigate to

*. As we discussed earlier, upon initially publishing a project, Alpha Anywhere creates a creates a special folder called the Local Webroot on your computer. By default, it is located at: c:\A5Webroot. See "Local Webroot" on page 231.

- c:\Alpha_WebMobileBook_Volume1_V12 \ ABC_WebMobile_Lessons\ ABC Seminars.WebProjects\MailingList.WebProject\.



8. Open the standard *Windows* **file type** drop down list at the bottom of the window. Choose:
   - A5W Pages (*.a5w).
9. **Add the following pages**:
   - MainMenu.a5w
   - MailingListPage.a5w.
10. Go to **WPCP > A5W Pages** to see them.

Adding an existing web component to a project

11. *Web Projects Control Panel > Web Components*: click **Add File**.
    - You should already be at the proper folder.
    - Since we selected Web Components, Alpha Anywhere knows what type of file you are looking for, so you should see the **.a5wcmp** file. If not, change the file type as above.
12. Choose **RightSlide.a5wcmp**. (Click Open)
    - This is a DBF version of *MyRightSlideRemote* component that we created in Chapter 2.
13. *Notice:* Click OK to permit Alpha Anywhere to analyze the components.

Adding image files

14. *Web Projects Control Panel > Images*: click **Add File**.
15. Choose **ABC_Seminars_Logo600w.jpg**. (Click Open)

Your project should now have four files.

a. *A5W Pages*: 2 files.

b. *Images:* 1 file.

c. *Web Components:* 1 file.

Renaming pages and components

We will rename the pages and component. This will affect only the elements in this project. The originals will remain unchanged.

16. Right click on the file, choose **Rename** for the following.

WEB COMPONENT

a. *Source Filename:* RightSlide.

- *Destination Filename:* **MyMailListSecure.**

A5W PAGES

b. *Source Filename:* MailingListPage.

- *Destination Filename:* **MyMailListSecurePage**.

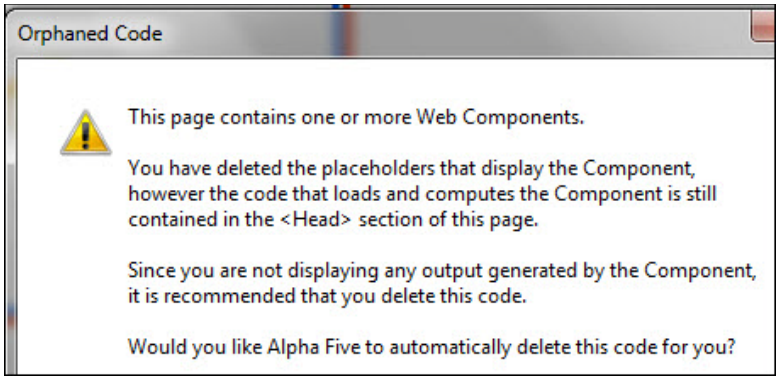
c. *Source Filename:* **MainMenu.**

• *Destination Filename:* **MyMainMenu**.

Removing a web component from a page

Next, we need to replace the old web component with a new one.

17. *WPCP > A5W Pages*: Open **MyMailListSecurePage** in Edit mode.
18. Click each of the web component sections and press **DELETE** until all are removed from the page.
19. Click **Save** or press CTRL+S.



REMOVE OLD CODE

Dialog Title: Orphaned Code

20. Click **Yes** to have Alpha Anywhere remove the old component code.
21. Click **Save** again to be sure the code is gone.

• This little extra step assures you are working with a clean slate.

HINT!

22. Place the cursor **below** the blue line (click twice to be sure).
    - Sometimes, it looks like the cursor is below the blue line, but it actually is not. If the component should be inserted at the top of the page, close without saving and reopen and redo.
23. Click *Insert Component* on the toolbar: choose **MyMailListSecure**.
24. Click OK twice.
25. Save and close the page.

Changing the link on a page

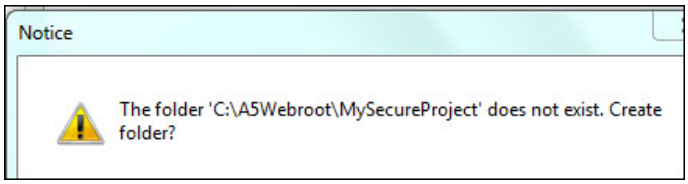
Before we can get a new link for the **MyMailListSecurePage,** we need to Publish the files.

26. Web Projects Control Panel > Publish. Define as follows:

- *Files to publish:* **All files in project.**
- *Launch browser after files are published:* **Yes.**
- *Page to show:* **MyMailListSecurePage.**

27. Click **Publish**.
28. Click OK at the files to be published dialog.

TARGET FOLDER

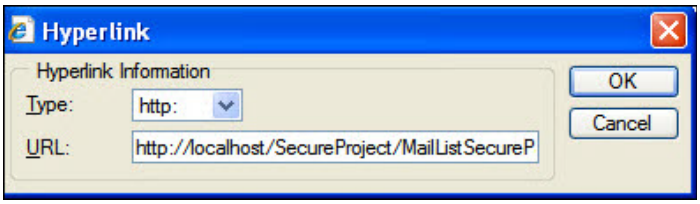


A notice appears, asking permission to create the Target Folder that we specified in step a on page 239.

29. Click **Yes** and then click OK to confirm that publishing is complete.
30. At the Browser, **copy the URL** (something like this):
    http://localhost/MySecureProject/MyMailListSecurePage.a5w

Notice that the Target Folder, *MySecureProject*, is included in the path.

31. Return to the **Web Projects Control Panel** and open the **MyMainMenuSecure** web page for editing.



32. Click in the *Go to Mailing List* link.
33. Click the **Insert Hyperlink** button on the toolbar and enter the URL into the box.
34. **Save** the page.
35. *Web Projects Control Panel > A5W Pages:* **Right click on the MyMainMenuSecure** page.
36. Choose **Publish (Local Webroot) and open**.
37. **Test the link** and inspect the URLs to be sure the correct pages are displaying.

- You now have a new project with most of the elements borrowed from another.

Developing the Security Framework

The Security Framework is based on establishing Users and Groups, their permissions and passwords. Then each element – page, component, file, folder, report, etc. – is defined as Denied, Always Allowed or Login Required.

The Framework checks each of these elements for its requirements. When a Login is required, the user is automatically directed to the login page. User ID and password (optional) parameters are entered and the project element is pulled up only by authorized users.

Developing the Security Framework is as much about the order of things as the settings themselves. The order of work is determined by the system requirements: We need a "redirect page" (see below) in order to save the Security Settings and the settings need to be defined before we can create a Login component.

SETUP

Here is an outline of the setup process:

a. Turn on the Web Security Framework.

b. Create a *redirect page* for login information.

c. Set up the security preferences.

d. Identify the users and groups.

e. Create a web component for logging in and place it on the redirect page created above.

f. Define which pages are secure.

g. Add security to the grid.

h. Publish the security files.

Turning security on

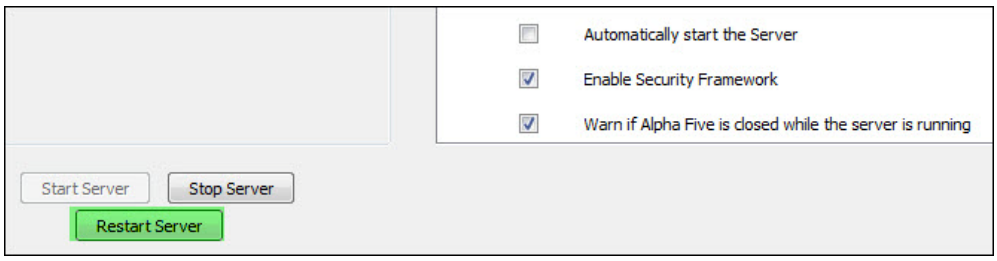
REMEMBER THIS

There are **two** checkboxes that control Security. They must **BOTH** be checked to have it applied.

- The first enables the **Web Security Framework** (see below).
- The second enables the **Web Security Configuration** (see page 246).

Security files will also need to be **re-Published** each time changes are made.

1. *Web Projects Control Panel* > *Top Menu* > Choose **Web > Application Server**.

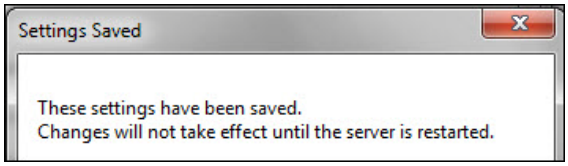


Dialog Title: Application Server Settings, General tab

We are concerned with only one setting at this time:

- **Enable Security Framework:** The Security Framework may be turned off and on at will at this dialog, but that means you will have to return each time to reset it. We recommend you keep it on here and use the procedure below for turning security on/off during application development.

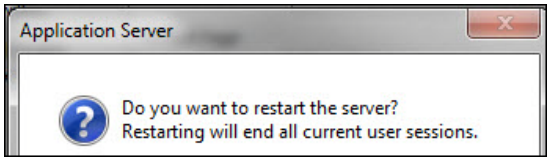
2. *Enable Security Framework*: **Yes.**
3. Click **Save**.
   - If the Application Server is off, you will be advised that your settings have been saved.



- If the Application Server is running, you will be advised that you need to restart it in order for the changes to take place.

a. Click OK.

b. Click the *Restart Server* button (yellow highlight above).



c. Click **OK** at the next dialog because we don't have any users on-line that would be interrupted.

4. Click **Close**.

Turning security off

KEEP THIS IN MIND AS YOU WORK

The important thing to remember about security is that once it is turned on, rules are enforced, even while testing. If you create a new page, you must move it out of the default *Always Denied* classification. You must know user names and passwords to test the web project. (We'll cover all of this later).

You may wish to turn security off while you are testing so that you don't get unnecessarily delayed.

- To turn it off, see "Web Security Configuration" on page 246.
    - Security Policy > Security active: Check*:* **No**.

THE REALLY GOOD NEWS

Security can be turned on or off at any time. Your settings will be remembered and you can change them as needed. You can implement any time during project development.

Testing pages / components

You can test pages / components with or without enforcing security rules.

WITHOUT SECURITY

The following methods do not enforce security rules. They are convenient for quick testing design because you do not have to move the page or component out of the default *Always Denied* classification

Pages: Click the *Execute* button at the HTML Editor (Application Server must be on).

Web Components: If you run a component that has security included at either the *Live* or *Working Preview* tab it will be rendered as if there is no security.

WITH SECURITY

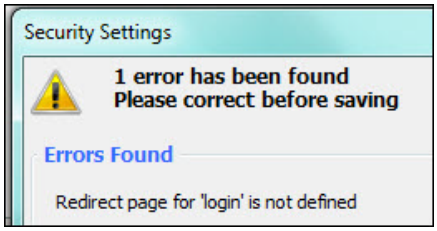
In order to test the security settings and, ultimately, the project design, you will need to publish the project and open the page in the browser. This is done from either of these places:

- WPCP: Click **Publish** and identify the Launch page.
- WPCP > A5W Pages: Right click on the page and choose **Publish (Local Webroot) and open**.

Creating a redirect page

HANG IN, PLEASE!

I know you're probably going to be confused by the following, but if you just read it over and then follow the steps, the light will dawn.



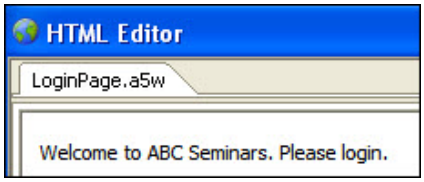
The temptation is to jump straight to defining web security, but, before you can save your definitions, you will need to identify a login page where the user will be taken when he/she requests the protected page. We will create it first so you don't get the error message at left.

- The redirect page is the "go to first" page when security is set for a web project. It will contain a Login Web Component asking for user id and password.*

CHICKEN OR EGG?

We will first create the page, and later create a Login web component to place on it, because

- We need the page to save the Security Configuration.
- The Security Configuration must be saved before the Login component can be created.



5. *Web Projects Control Panel* > *A5W Pages*: Create a **new page**.
   - Click New > A5W Page > Next > Blank Page and then Next.
6. Type: **Welcome to ABC Seminars. Please login.**
7. **Save** the page as **MyLoginPage**.
   - You may leave the page open as we will return to it after the following steps.

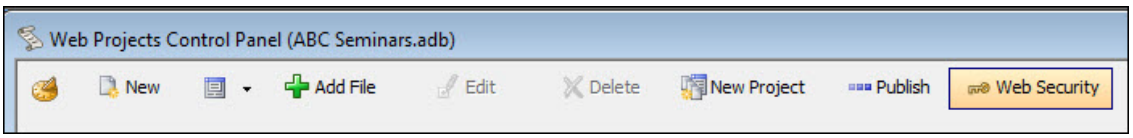
The balance of this section is divided up as follows:

A. Defining the Web Security Configuration

There are so many options here that it's hard to believe that even the choosiest of designers couldn't be satisfied with a few simple clicks, but, as in the rest of Alpha Anywhere, customization via programming is also available. At this time, we will confine ourselves to looking over the options and changing only a few defaults.

NOTE TO NON-PROGRAMMERS

This is the most involved step in the security process. The terms in the following sections will be more familiar, so, once again, we say "Hang in there!"



*. Passwords are optional, but user id is required.