



# External CWP Overview

April, 2016



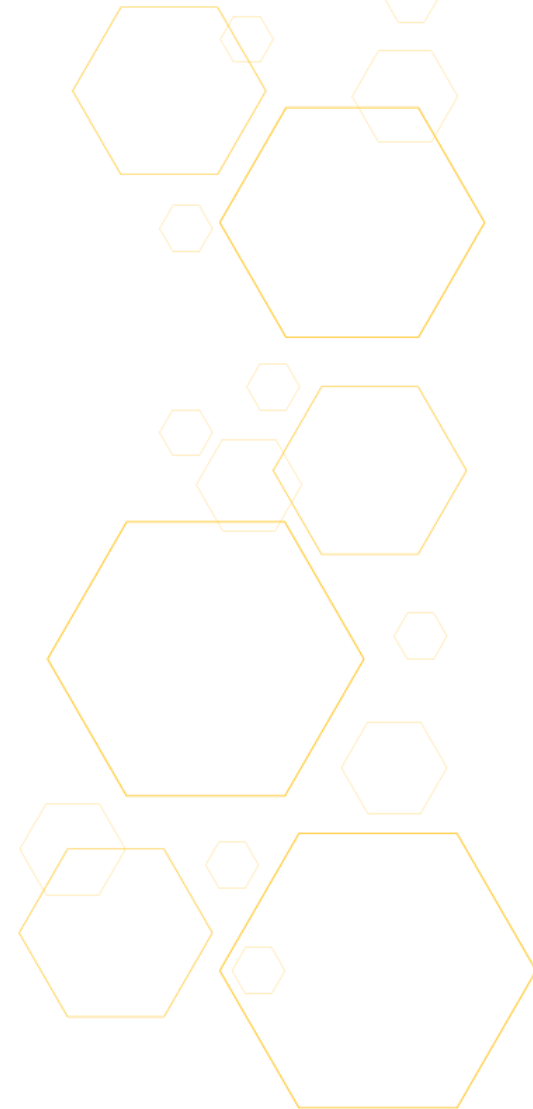
# External CWP

**Used with an Open SSID**

**Provides access based on user credentials**

] OR used to gather self registration information

**Not available for PPSK self registration**



# Authentication Options

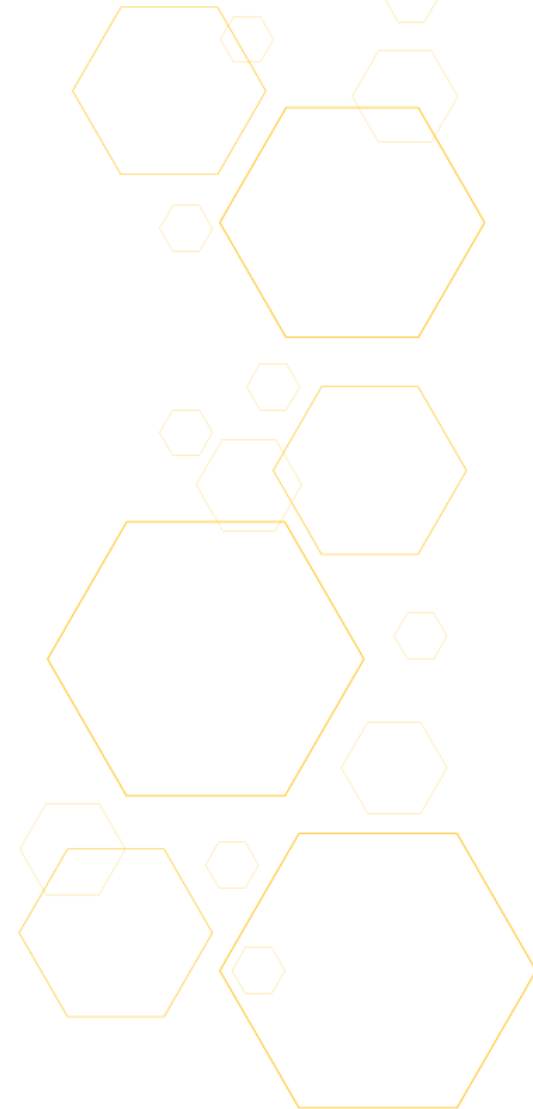
## External CWP with Local Authentication

- ] External server provides login form
- ] User credentials sent to AP with HTTP POST
- ] AP is RADIUS client (PAP/CHAP/MSCHAPv2)

## External CWP with External Authentication<sup>(\*\*)</sup>

- ] External server provides login page
- ] User credentials sent back to external web server
- ] User authentication is processed on external server
- ] External server passes back success or failure code with HTTP POST

(\*\*) Requires a command that can only be set from the CLI



# Considerations

## Walled Garden

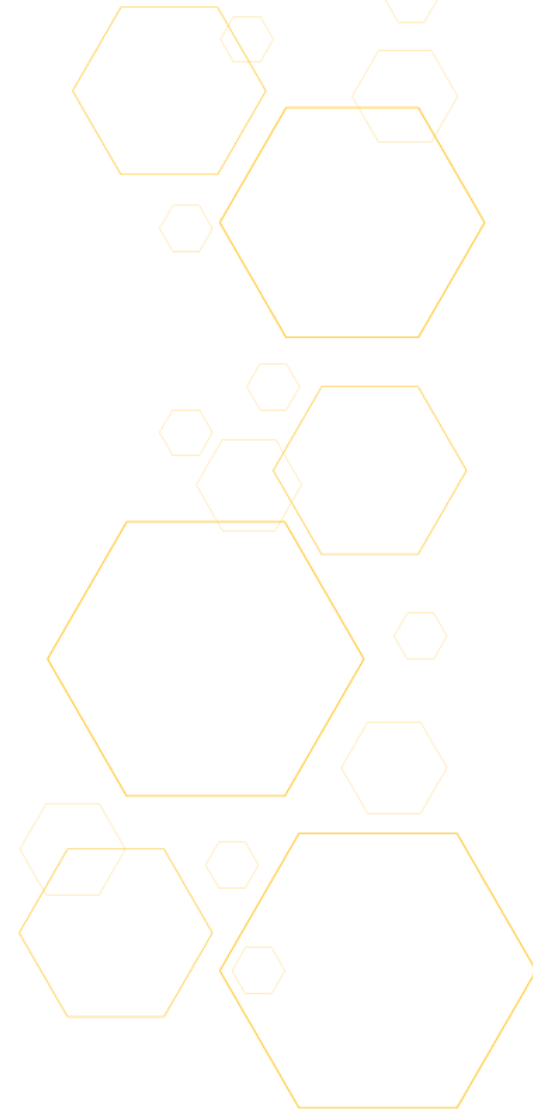
- ] Allows access to specific sites prior to authentication
- ] Up to 64 IP addresses per SSID

## Encryption

- ] Use HTTPS for all communication between client and AP and/or external web server
  - User credentials are passed in an HTTP POST
  - Success and failure codes are passed in an HTTP POST
- ] UAM for passwords is available if HTTPS not desired

## Login Success and Failure Pages

- ] Can be hosted locally on AP or externally



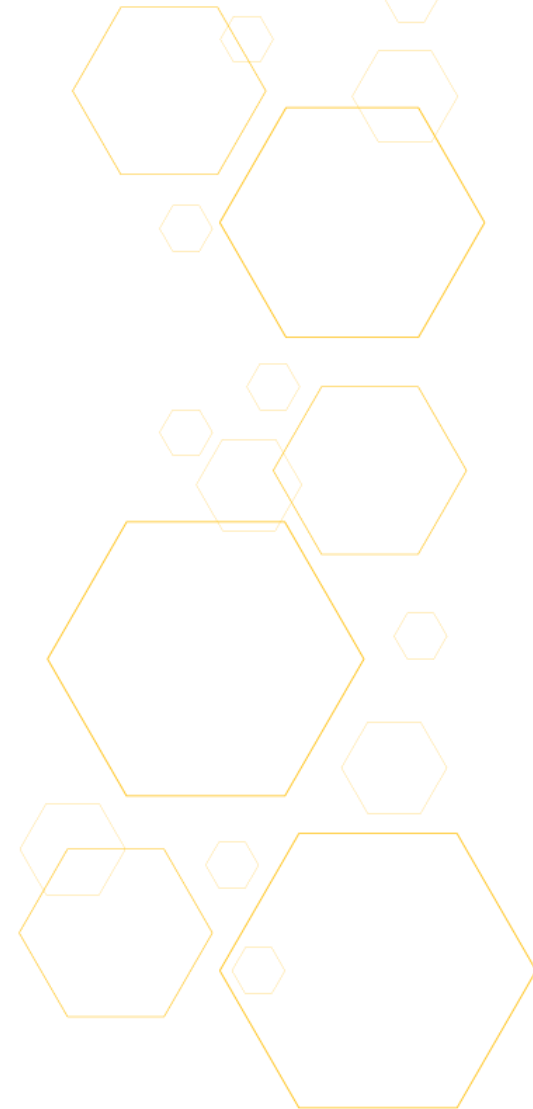
# Redirection Options

## HTTP 302 Response Status Code

- ] AP responds with HTTP 302 redirect
- ] Configured in Advanced Options in CWP object
- ] Use if Javascript is not compatible with clients

## Javascript

- ] Default behavior
- ] AP responds with HTML that contains a Javascript redirect



# Redirect Example - Javascript

## Default redirection behavior

HTTP/1.1 200 OK

.

<body onLoad='redirTimer()>Please wait...<SCRIPT LANGUAGE='JavaScript'>

```
redirTime = '500';
```

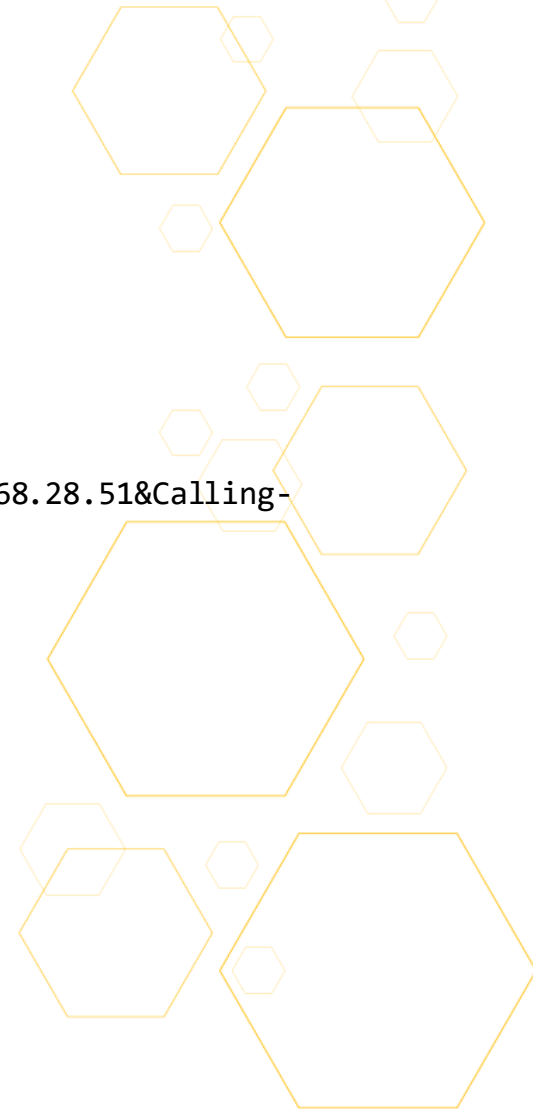
```
redirURL = 'http://domainx.com/login.php?url=E2B8F3578D88E9A53591BB5E8F9F4E978C28109A19&ssid=WiFi-X&mac=3ca9f455cd64&autherr=0&Called-Station-Id=001977717528&NAS-IP-Address=1.1.101.1&RADIUS-NAS-IP=192.168.28.51&Calling-Station-Id=3ca9f455cd64&STA-IP=192.168.28.107&NAS-ID=AP-Hostname';
```

```
function redirTimer() {  
    self.setTimeout('self.location.href = redirURL;',redirTime);  
}
```

```
</script>
```

```
<br>If you cannot see the login page, close and then reopen your browser and try again.</font></div>
```

```
</body>
```



# Redirect Example – HTTP 302

HTTP/1.1 302 Found

Date: Thu, 10 Apr 2014 23:05:19 GMT

Connection: keep-alive

Transfer-Encoding: chunked

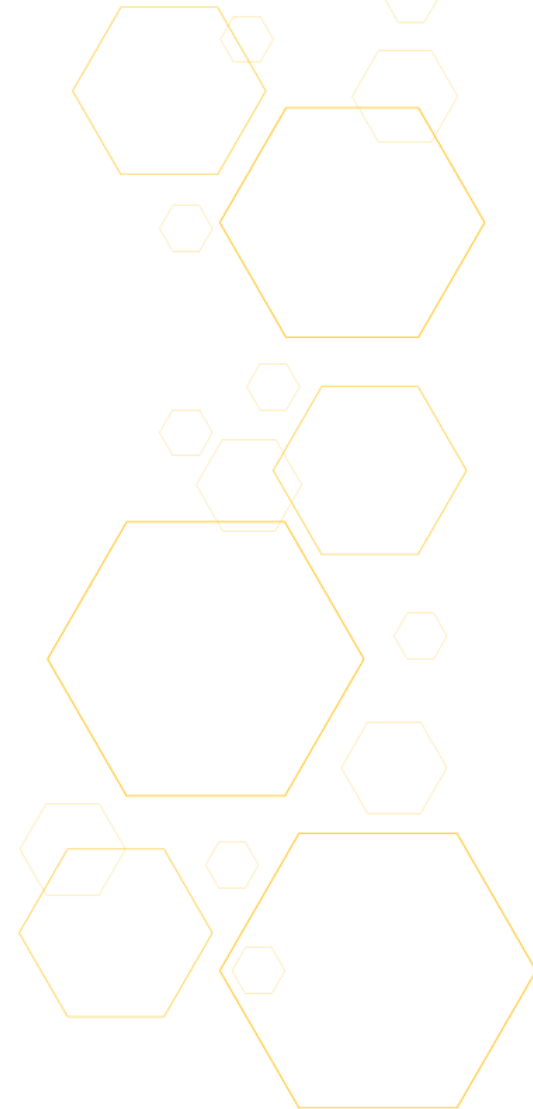
Location: <http://domainx.com/login.php?url=E2B8F3578D88E9B73196FB0989980F9BCD2650&ssid=WiFiX&mac=f0dce239b847&autherr=0&Called-Station-Id=001977717514&NAS-IP-Address=1.1.1.1&RADIUS-NAS-IP=192.168.28.51&Calling-Station-Id=f0dce239b847&STA-IP=192.168.28.108&NAS-ID=AP-Hostname>



# External CWP Parameters

Values passed to external web server

url	E2B8F3578D88E9A53591	[encrypted URL]
ssid	wifi-network	
mac	3ca9f455cd64	[client MAC]
autherr	0	[success or failure]
challenge	4E88CF174146D4C2F925	[For UAM ]
Called-Station-Id	001977717514	[BSSID]
NAS-IP-Address	1.1.1.1	[AP's web service address]
RADIUS-NAS-ID	192.168.28.51	[AP's IP address]
Calling-Station	3ca9f455cd64	[client MAC]
STA-IP	192.168.28.107	[client IP address]
NAS-ID	AP-hostname	





# External CWP Parameters

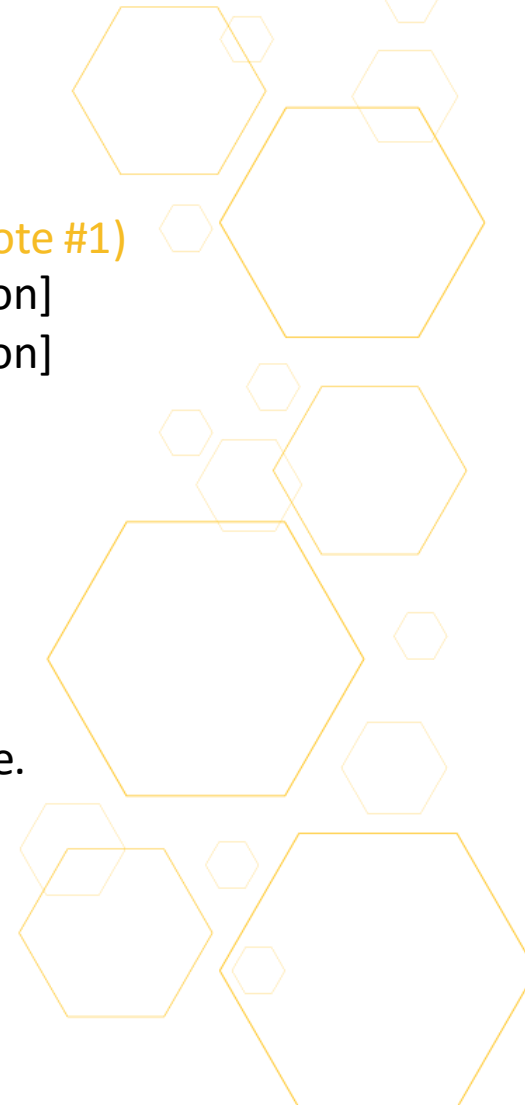
Values to be passed from server to AP

url	http://www.aerohive.com	[redirect url; required field] (note #1)
username	user1	[required for local authentication]
Password	*****	[required for local authentication]
autherr	0	[success or failure] (note #2)

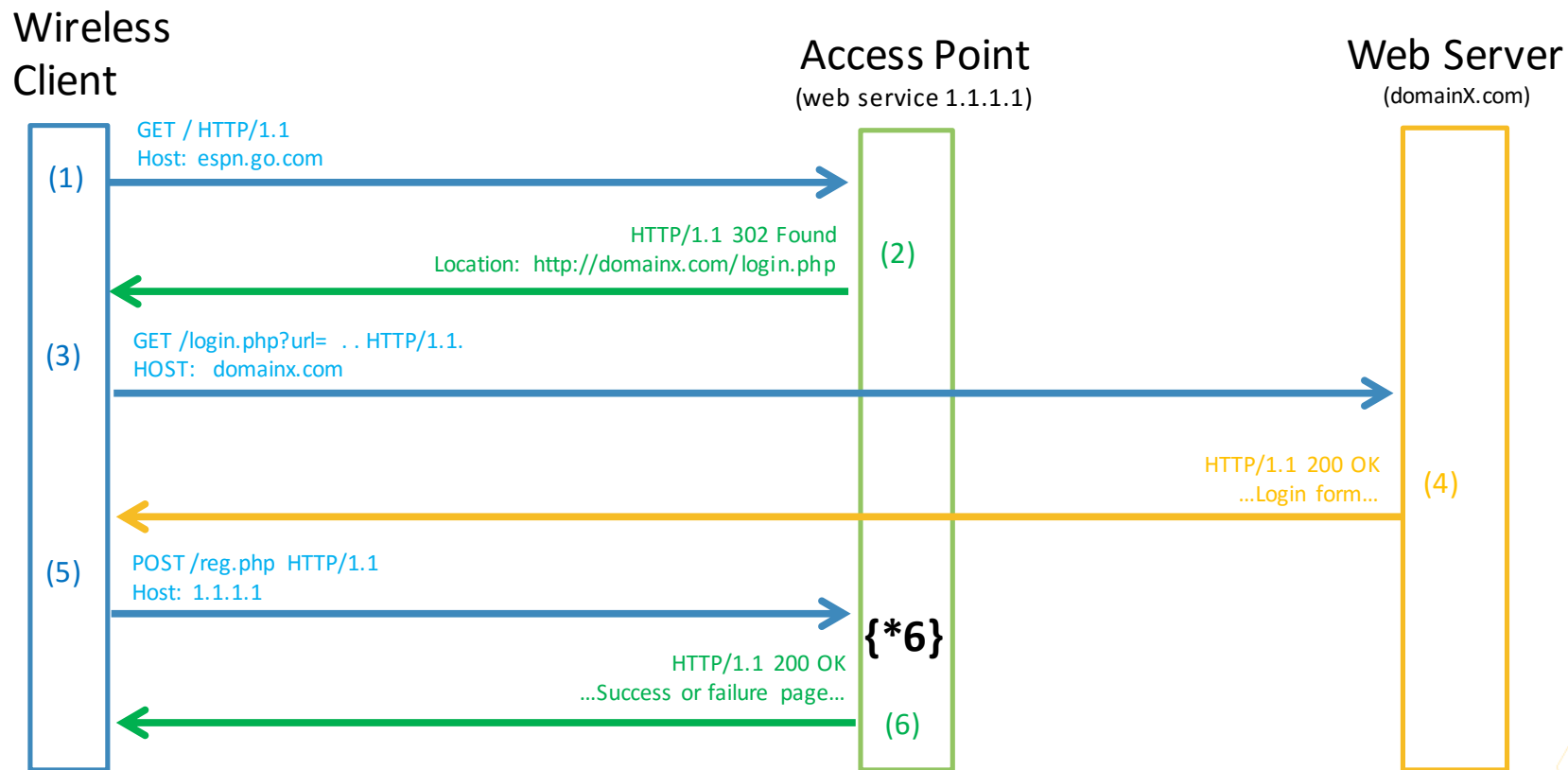
**Note #1:** This is a required field even if it is not used.

**Note #2 :** autherr is only used for External Auth scenario and is ignored otherwise.

success = 0; failure = not 0



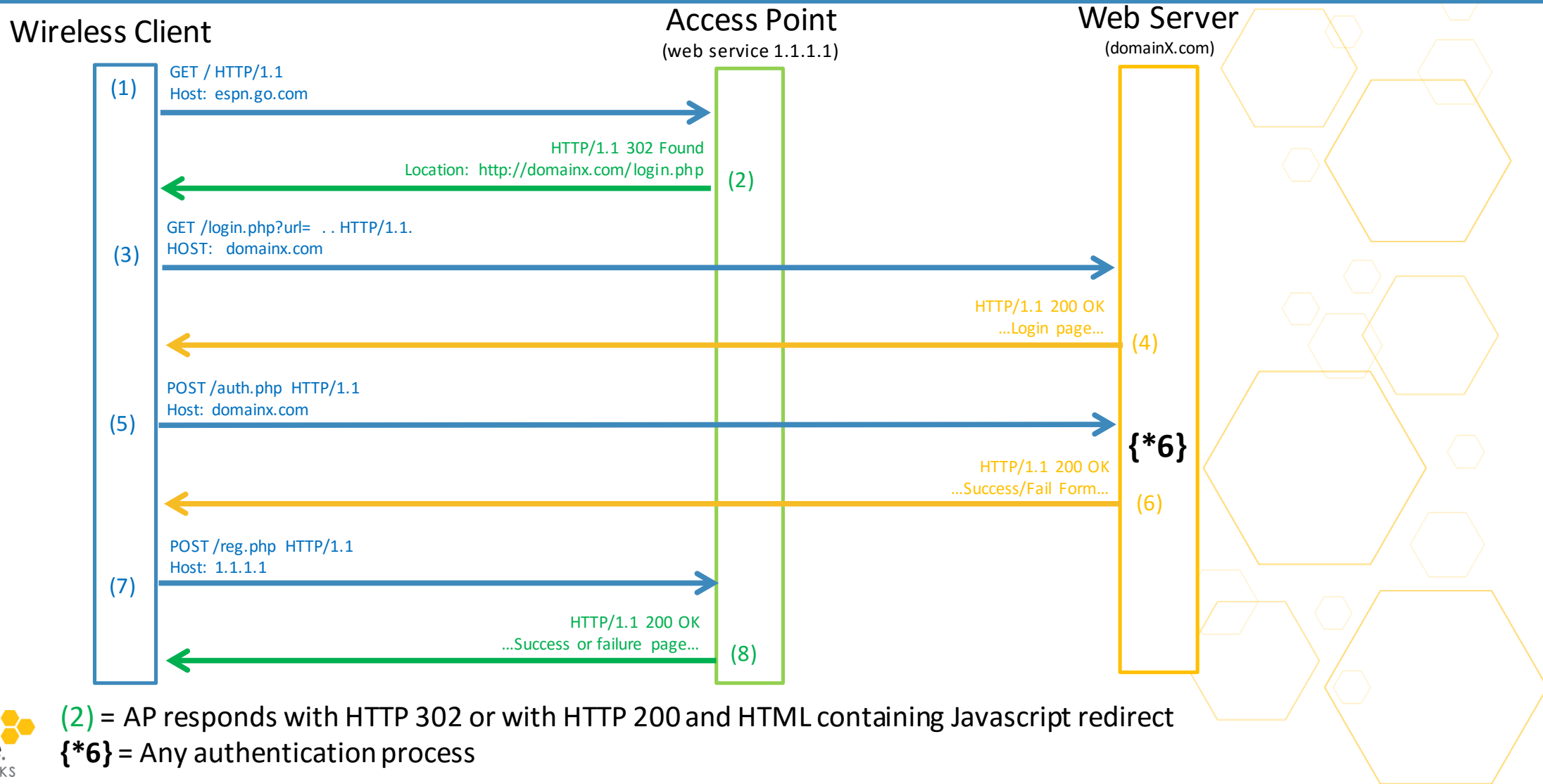
# External CWP – Local Auth



(2) = AP responds with HTTP 302 or with HTTP 200 and HTML containing Javascript redirect  
{\*6} = RADIUS Auth by AP (PAP, CHAP or MSCAPv2)

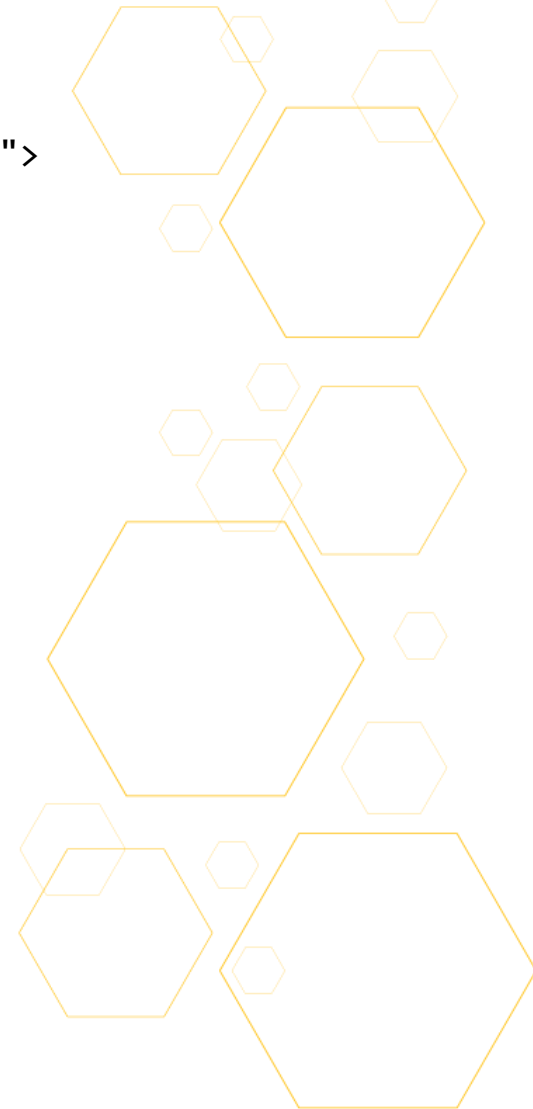
**Aerohive** NETWORKS

# External CWP – External Auth



# Example Code – Local Auth Simple Login Page

```
<body>
<form name="weblogin" action="http://1.1.1.1/reg.php" id="logon" method="post">
  <input type="hidden" name="url" value="any-value-here"/>
  <p>
    <label for="username">Username</label>
    <input class="input" type="text" id="username" name="username" />
  </p>
  <p>
    <label for="password">Password</label>
    <input class="input" type="text" id="password" name="password" />
  </p>
  <input type="submit" value="LOGIN" />
</form>
</body>
```



# Example Code – External Auth

## Final form/page sent to user

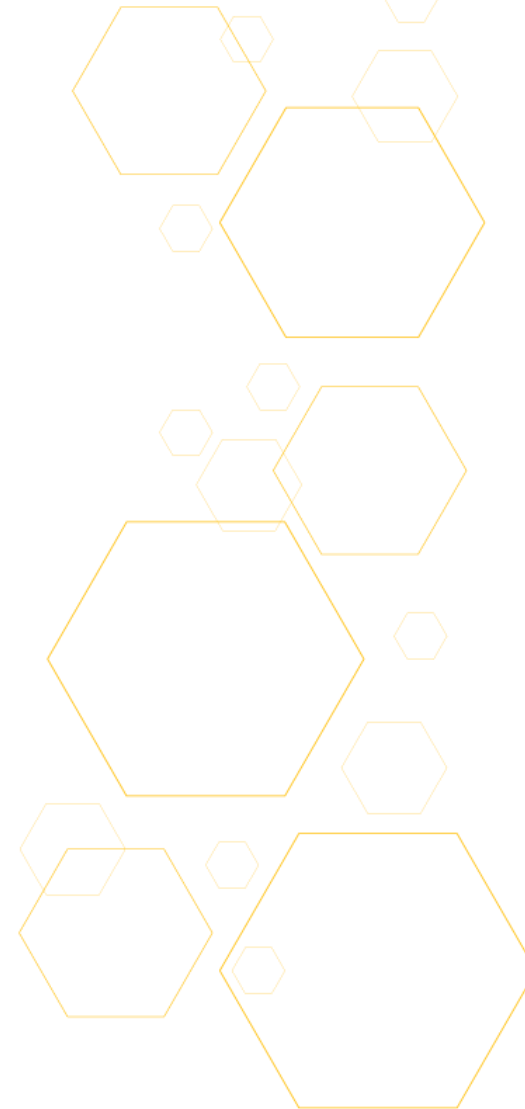
```
<body>
<p><b>
<?php
    if ($_GET["autherr"] == "0")
        echo "Login Successful! ";
    else echo "Login Failed! "; ?>
Click OK to continue</b></p>
<form name="weblogin" action="http://1.1.1.1/reg.php" id="logon" method="post">
<input type="hidden" name="autherr" value="
    <?php    if ($_GET["autherr"] == "0")
        echo "0"; else echo "1"; ?>    "/>
<input type="hidden" name="url" value="any-value-here"/>
<input type="submit" value="Continue" />
</form>
</body>
```



# Example PHP Code – Diagnostics Page

## Use to verify parameters sent to external server

```
<h2>Variables passed to the External CWP </h2>
</p>
<?php
    echo "<ul>";
    echo "<li> url: ", $_GET["url"], "</li>";
    echo "<li> ssid: ", $_GET["ssid"], "</li>";
    echo "<li> mac: ", $_GET["mac"], "</li>";
    echo "<li> Calling-Station: ", $_GET["Calling-Station-Id"], "</li>";
    echo "<li> STA-IP: ", $_GET["STA-IP"], "</li>";
    echo "<li> autherr: ", $_GET["autherr"], "</li>";
    echo "<li> challenge: ", $_GET["challenge"], "</li>";
    echo "<li> Called-Station-Id: ", $_GET["Called-Station-Id"], "</li>";
    echo "<li> NAS-IP-Address: ", $_GET["NAS-IP-Address"], "</li>";
    echo "<li> Query String: ", $_SERVER["QUERY_STRING"], "</li>";
    echo "</ul>";
?>
```



# HiveManager Configuration Steps

## Create SSID

### – SSID Usage

- SSID Authentication

- Open Security Access

- Enable Captive Web Portal: **On**

- Select “**User Auth on Captive Web Portal**”

- Choose Authentication Type “**Redirect to External URL for Authentication**”

- Create CWP

- » Configured the Login URL (and if needed other parameters)

- Configure RADIUS Client information

- » **This object is required but does not need to contain real information when using external authentication scenario**



# HiveManager Configuration Overview

## External CWP – External and External Authentication

### SSID Usage

SSID Authentication | MAC Authentication

Enterprise WPA / WPA2 802.1X

Personal WPA / WPA2 PSK

Private Pre-Shared Key

WEP

Open Unsecured

**ON** **Enable Captive Web Portal**  
Enable to display a splash page and configure captive web portal options.

Select features for this captive web portal

User Auth on Captive Web Portal  **ON**  
Authenticates the user on the splash page

Enable Self-Registration  **OFF**  
Enables the user to register on the splash page.

Return Aerohive Private PSK  **OFF**  
Issues a Private PSK for the user

Enable UPA  **OFF**  
Display the Use Policy Acceptance page

Choose Authentication Type:

Authentication via RADIUS Server

**Redirect to External URL for Authentication**

Default Captive Web Portal  **+**  
Use a different captive web portal for various clients.

Name: externalCWP

Select features for this captive web portal

User Auth on Captive Web Portal  **ON**  
Authenticates the user on the splash page

Enable Self-Registration  **OFF**  
Enables the user to register on the splash page.

Return Aerohive Private PSK  **OFF**  
Issues a Private PSK for the user

Enable UPA  **OFF**  
Display the Use Policy Acceptance page

Choose Authentication Type:

Authentication via RADIUS Server

**Redirect to External URL for Authentication**

### Captive Web Portal Settings

Login Page

Login URL:

Password Encryption:

Authentication Method: CHAP

Success Page  **ON**  
Show the success page after a successful login attempt.

Customization and Preview

Redirect clients after a successful login attempt.

Failure Page  **ON**  
Show failure page after an unsuccessful login attempt.

login page to display the failure message

Standard failure page

Redirect clients after a failed login attempt

### Authentication Settings

#### Authenticate via RADIUS Server

Default RADIUS Server Group: dc.ah-lab.fr

Name	Type	IP/Hostname
dc.ah-lab_fr_ip	External RADIUS Server	10.51.0.210



# HiveManager Configuration Overview

## External CWP – External Authentication

The image displays two screenshots from the Aerohive Networks HiveManager interface, illustrating the configuration steps for External CWP (Captive Web Portal) authentication.

**Left Screenshot: VHM Management**

- The **Supplemental CLI** toggle is set to **ON**.
- The **VHM Name** is **VHM-FCOLZYZL**.
- The **Last backed up on** date is **2016-03-07 18:21:00**.
- The **Current Status** is **ACTIVE**.

**Right Screenshot: Supplemental CLI Configuration**

- The **Supplemental CLI** toggle is set to **ON**.
- The **Name** field is set to **externalCWP**.
- The **CLI Commands** field contains the command: `security-object FreeWiFi security additional-auth-method captive-web-portal external-server primary no-radius-auth`.

**Requires a command that can only be set from the CLI:**

```
security-object <SSID-Name> security additional-auth-method captive-web-portal external-server primary no-radius-auth
```

# Appendix – A

## UAM-Basic

```
GET  
/login.php?url=E2B8F3578D88E9BB2C8FE10A9EC7108BD6650F82453C88F1968786C012  
30889EA5AEE640&ssid=WiFi-  
X&mac=b065bdbaa3f5&autherr=0&challenge=C715113A9FE7909412288BAADCEAD822&C  
alled-Station-Id=001977717528&NAS-IP-Address=1.1.101.1&RADIUS-NAS-  
IP=192.168.28.51&Calling-Station-Id=b065bdbaa3f5&STA-  
IP=192.168.28.107&NAS-ID=AP-Hostname1 HTTP/1.1
```

