

Version 1.00

Central WiFiManager Configuration Guide



Business Class Networking

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Introduction

This document provides readers with a quick guide that explains the essential operation of the **Central WiFiManager** (CWM). For a more detailed explanation about all the functions in the CWM, refer to the *Central WiFiManager User Manual*.

System Requirements

	Large Scale Deployment	Small Scale Deployment
Maximum APs Managed	500 APs	100 APs
Recommended CPU	Microsoft [®] Intel i5 3.2GHz CPU	Microsoft [®] Intel i3 3.5GHz CPU
Recommended RAM	4G DDR3	2G DDR2
Recommended Storage	2TB	1TB
Ethernet NIC	Gigabit	Gigabit
Display Card	DirectX 11 1GB	DirectX 11 1GB
Windows Platform	Microsoft [®] Windows 2008 Server Microsoft [®] Windows 2012 Server	Microsoft [®] Windows 7 Professional Microsoft [®] Windows 2008 Server Microsoft [®] Windows 2012 Server

Access Point Requirement

The following access points are compatible to be managed by the CWM:

- DAP-2310 (H/W: B1, F/W: v2.01rc013 or above)
- DAP-2360 (H/W: B1, F/W: v2.01rc012 or above)
- DAP-2330 (H/W: A1, F/W: v1.01rc014 or above)
- DAP-2660 (H/W: A1, F/W: v1.05rc016 or above)
- DAP-2690 (H/W: B1, F/W: v3.10rc072 or above)
- DAP-2695 (H/W: A1, F/W: v1.10rc035 or above)

Latest CWM Modules

The following modules are available and can be installed additionally as add-ons to the CWM:

- CWM_DAP2310B v2.01-R12
- CWM_DAP2330 v1.01-R12
- CWM_DAP2360B v2.01-R09
- CWM_DAP2660 v1.05-R20
- CWM_DAP-2690 v3.10-R25
- CWM_DAP2695 v1.10-R29

Scenario 1 - Basic Setup

In this scenario we'll configure a very basic Layer 2 edge network configuration with one PC running the Central WiFiManager (CWM) server and two DAP-2660 access points. The objectives in this scenario are as follow:

- To understand the minimum configuration for operation.
- To add access points for CWM management.
- To understand the essential CWM features.



Figure 1-1 Basic Setup Network Layout

The overview of the configuration steps for Central WiFiManager is as follows:

- 1. Install Central WiFiManager on Computer
- 2. Install Access Point Module
- 3. Run the Central WifiManager Server
- 4. Login to the Central WiFiManager
- 5. Check and Download AP Module Online
- 6. <u>Create Site and Network, Configure SSID Settings</u>
- 7. Add Access Points in CWM using the Installation Tool

1.1. Install Central WiFiManager on Computer

After running the Central WifiManager installation file (*Central WifiManager v.100.exe*), a welcome window will be displayed.



Figure 1-2 Install Central WifiManager (Welcome)

Click the **Next >** button to continue to the next step. Click the **Cancel** button to stop and exit the installation.

In this window, the destination location is displayed, where the software will be installed. If this application needs to be installed at a different location or on a different drive, click the **Browse** button and navigate to the new destination location.

Choose Destination Location			A State of the
Select folder where setup will install files.			
Setup will install Central WifiManager in t	he following folder.		
To install to this folder, click Next. To ins another folder.	tall to a different folder	click Browse	and select
Destination Folder			1
Destination Folder C:\Program Files (x86)\D-Link\Central	WifiManager		Browse
Destination Folder C:\Program Files (x86)\D-Link\Central	WifiManager		Browse

Figure 1-3 Install Central WifiManager (Destination Location)

Click the < **Back** button to return to the previous step. Click the **Next** > button to continue to the next step. Click the **Cancel** button to stop and exit the installation.

In this window, we need to enter the IP address for the Central WifiManager in the **Central WifiManager Server** space provided. This is normally the IP address of the PC being used for the installation. This IP address can be modified later.

Central WifiManager - InstallShield Wize Central WifiManager Server IP	ard	x
Central WifiManager Server IP		
Central WifiManager Server		
nstallShield ————————————————————————————————————	< Back Next > Cancel	

Figure 1-4 Install Central WifiManager (Server IP)

Click the **< Back** button to return to the previous step. Click the **Next >** button to continue to the next step. Click the **Cancel** button to stop and exit the installation.

In this window we can change the **Manager Port**, **Listen Port** and **Service Port** numbers. These ports numbers are used for multiple access point connections and it can only be specified here and can't be modified after the installation. Leave these port numbers on the default settings if these ports have not been used on this computer.

Central Wifi Manag	r Port Setting	121
Manager Port	9000]
Listen Port	8090	
Service Port	64768	
nstallShield	< Back	Next > Cancel

Figure 1-5 Install Central WifiManager (Port Settings)

Click the < Back button to return to the previous step. Click the Next > button to continue to the next step. Click the Cancel button to stop and exit the installation.

In this window, we must enter the **PostgreSQL** database password that will be associated with this application in the spaces provided. Enter the same password in the **Password** and **Retype password** spaces provided. This password cannot be modified after this installation.

Password				124
Please provide a password	for service accou	int (postgres)		
Password]
Retype password	į.			
istallShield		< Back	Next >	Cancel

Figure 1-6 Install Central WifiManager (Password)

Click the < Back button to return to the previous step. Click the Next > button to continue to the next step. Click the Cancel button to stop and exit the installation.

The installation of this application requires **Microsoft Visual C++ 2008 Redistributable** to be installed on this computer. If not found, the option will be given to install the required redistributable. If found this step will be skipped.

The Apache HTTP Server application might be blocked by the computer's firewall. If Windows' default firewall is used, a security alert message will be displayed. Click the **Allow Access** button to allow this application to communicate with the network. In this window, the user is reminded that apart from the Central WifiManager installation, each access point that will be used in this application requires a separate module to be installed. This will be discussed in the next section.



Figure 1-7 Install Central WifiManager (Finish)

Click the Finish button to complete and exit the installation wizard.

After the CWM installation, there will be two applications installed on the PC called the **Central WiFiManager Server** and the **Central WiFiManager**.



Figure 1-8 Central WifiManager Files

1.2. Install Access Point Module

For each access point that will be used in the D-Link Central WifiManager, we need to install an additional manager module. In this section we'll discuss the installation of the DAP-2660AP access point's manager module that will be used in the D-Link Central WifiManager. If the Central WifiManager Server is already running, it must be stopped and closed before that Access Point manager module can be installed.

After running the access point's manager module, a welcome message will be displayed to inform the user that the manager module will now be installed on the computer.



Figure 1-9 Install Access Point Module (Welcome)

Click the **Next >** button to continue to the next step. Click the **Cancel** button to stop and exit the installation.

After the access point's manager module was installed successfully, this window will appear.



Figure 1-10 Install Access Point Module (Finish)

Click the **Finish** button to complete and exit the installation wizard.

1.3. Run the Central WifiManager Server

In this section, we'll discuss the Central WifiManager Server application. After the installation was completed the following applications will be available.

Click the Server option to open the server application.

After running the **Central WifiManager Server** application, the window (on the right) will appear. This is the management console window for the server application.

In the **Menu** bar, there are two options available, **Server** and **Help**. Under the **Server** menu we can **Start**, **Stop** or **Exit** the application. Alternatively, right under the **Server** menu option, there is also start and stop icons. Under the **Help** menu option, there is an **About** option that will, after being clicked, display the name, version and copyright details of this application.

In the Settings section, we can select to Automatically open configuration window when Windows start up and Automatically start server when configuration window is open. Select these options if needed. Click the icon to start the server.

🧶 Central WifiManager Server	
Server Help	
•	
Settings Automatically open configuration window when Windows start up Automatically start server when configuration window is open	
Message 2014-7-01 10:06:47 Syslog Server Start success. 2014-7-01 10:06:47 FTP Server online 2014-7-01 10:06:47 SnmpTrap receiver initialize successfully!	
CommLog FtpLog APLiveLog DataRefreshLog AutoConfigLog Central WifiManager Server is online	

Figure 1-11 CWM Management Console

When clicking the close icon (≅), on the far upper right corner, this application will close and exit. The server will not be running in the background. Click the minimize icon (ⓐ) to close this window and allow the server application to run in the background.

When the server is up and running, the left circle icon (), at the far bottom right corner, will display green. When the server is not running the right circle icon (), at the far bottom right corner, will display red.

To view log entries about the System, FTP Connectivity, Live Access Points, Data Transmissions and Automatic Configurations, tabs at the bottom of the **Message** section can be selected.

1.4. Login to the Central WiFiManager

1.4.1. Login to the CWM from a local computer

Click the Central WifiManager option to open the client application. After the Web browser was open and connection to the server was made successfully, a login window will appear. Enter the login user name and password and click **Login** to enter the Central WifiManager configuration.

By default, the user name and password is **admin**.

D-Link Building Networks for People	
Central WiFiMa	anager
User Name :	
Password :	
	Login

Figure 1-12 CWM Server Login

1.4.2. Remote login Central WiFiManager

Alternatively, from a remote computer, we can connect to the Central WifiManager Server by entering the **IP address** or **Domain Name** of the computer that has the server application installed into the web browser, thus it is not needed to install the software on the remote computer. Open the web browser on the remote computer (Internet Explorer or Google Chrome are recommend) and enter for example *https://192.168.10.1* or *https://domain-name.com* (where *192.168.10.1* or *domain-name.com* is the IP address or domain name of the computer running the CWM server) in the web browser's address bar and press *ENTER* to enter the CWM management interface.

1.5. Check and Download AP Module Online

After logging into the D-Link Central WifiManager Server, we can click on **System**, at the top, then **Settings** on the left, and then select the **Module** tab option, in the middle of the page, to access the following window.

					2014-07-0	1 16:59 👱 Sign Out/admin
D Central WiFiMa	nager	Home	Configuration	System	Monitor	İ About
Settings	System>Settings					
User Manager	General Modul Online Checking Checking for the Check Now Modul	e Database Advanced for The Latest Version latest module and Firmwa le Name DAP-2330 DAP-2660	BMTP reversion DAP-2330 Module Name Description: Product Versi Support Banc	Module Info : DAP-2330 AP Manager Module on: 1.01 : 2.4GHz	rmation	OK
		C	opyright ©2014 D-Li	nk Corporation.		

Figure 1-13 Update AP Module

In the **Module** tab, a list of access point modules will be displayed in the **Module Name** section. Every different model of access point that can be managed by the Central WifiManager Server requires the administrator to install the executable module file for that specific access point's model name.

For example, on this page we have two kinds of access point modules installed, the **DAP-2330** and the **DAP-2660**. This means that we can have multiple DAP-2330 and DAP-2660 access points installed on the network, but only required to install two modules, one for each type of access point. The module executable files for all the access points, supported in the application, can be downloaded from the D-Link website.

To keep the installed modules and firmware versions for access points up to date, click on the **Check Now** button.

Click the \mathbf{OK} button to accept the changes made.

1.6. Create Site and Network, Configure SSID Settings

To create a new **Site** (D-Link), select **Configuration** and then click the e button. Multiple sites can be created for multi-tenant use.

				()2014-08	8-16 10:58 🧕	Sign Out/adm
D Centr Wifi	al iManager	\$	•	<u></u>		i
	H INNER H	lome Configuration	System	Monitor		About
Site	Configuration>Site					
D-Link						6
Undefined AP			Site List			
	Site Name					Delete
	D-Link	admin	admin	2014-08-12 15:13:51	2/	ī

Figure 1-14 New Site (D-Link)

To create a new **Network** (HQ), select the newly created **Site** (D-Link) and click the **o** button. Multiple networks can be created for each site.

					O 2014	-08-18 09:53 👤 Sign Out/adm
D Cent	ral Manager	Home	Configuration	System	Monitor	About
Site	Configuration>S	ite>D-Link			i den estadeun direct	
D-Link						
E HQ				Maturals Lint		
Undefined AP	Network	Name	Admin Member	Creator	Creat Date	Modify Delete Export
	н	2	admin	admin	2014-08-12 15:14:13	

Figure 1-15 New Network (HQ)

After creating the new network (HQ), select it. Additional information will be displayed. For each network additional settings can be configured like SSID, VLAN, Bandwidth Optimization, RF Optimization, Device Settings, and more.

		Care Care				2014-08-16 11	l:07 🙎 Sigi	n Out/admin
D Central WifiMa	nager	Home	Conf	iguration	System	Monitor	i Abou	, rt
Site	Configuration	on>Site>D-Link>HQ>	SSID					
D-Link								0
SSID	Index	SSID	Band	Security	Access Control	User Authentication	Modify	Delete
VLAN	Primary	D-Link HQ	5GHz	WPA2-Personal		Disable	E/	Ē
Bandwidth	Primary	D-Link HQ	2.4GHz	WPA2-Personal		Disable	E/	Ē
Captive portal								
RF Optimization								
Device setting								
Uploading Configuration								
Firmware Upgrade								
Undefined AP								

Figure 1-16 Network Configuration Options

To create a new 5GHz **SSID** (D-Link HQ), select the newly created **Network** (HQ) and click the **o** button. Select the **Band** (5G), **Index** (Primary), enter the **SSID** (D-Link HQ), and configure the wireless security settings. In this example we used **WPA2-Personal** for wireless security. After selecting WPA-Personal, enter the **PassPhrase** (12345678) in the space provided. Click **Save** to apply the settings.

Configuration>Site>D-Lin	k>HQ>SSID	
Basic Settings		1
-Wireless Settings		1
Band	5G 🔽	
Index	Primary 🗸	
SSID	D-Link HQ	
SSID Visibility	Enable 🔽	
WMM (Wi-Fi Multimedia)	Enable 🔽	
Security	WPA2-Personal	
WPA Settings		í.
Cipher Type	Auto 🔽 Group Key Update Interval 1812	
PassPhrase	••••••	
RADIUS Server	Port 1812	
RADIUS Secret		

Figure 1-17 New SSID (5G)

To create a new 2.4GHz SSID (D-Link HQ), select the newly created **Network** (HQ) and click the button. Select the **Band** (2.4G), **Index** (Primary), enter the **SSID** (D-Link HQ), and configure the wireless security settings. In this example we used **WPA2-Personal** for wireless security. After selecting WPA-Personal, enter the **PassPhrase** (12345678) in the space provided. Click **Save** to apply the settings.

Configuration>Site>D-Link?	•HQ>SSID	
Basic Settings		
-Wireless Settings		1
Band	2.4G 🗸	
Index	Primary 🗸	
SSID	D-Link HQ	
SSID Visibility	Enable 🗸	
WMM (Wi-Fi Multimedia)	Enable 🗸	
Security	WPA2-Personal	
-WPA Settings		i
Cipher Type	Auto Group Key Update Interval 1812	
PassPhrase	•••••	
RADIUS Server	Port 1812	
RADIUS Secret		
		1

Figure 1-18 New SSID (2.4G)

							()2014-08-16 1	1:41 👱 Sigi	n Out/admin
	entral JifiMa	nager	Home	Conf	iguration	System	Monitor	i Abou	, t
Site		Configurati	on>Site>D-Link>HQ>	SSID					
D-Link	•								0
E HQ	•								
SSID		Index							Delete
VLAN		Primary	D-Link HQ	5GHz	WPA2-Personal		Disable	E/	ī
Bandwid	dth	Primary	D-Link HQ	2.4GHz	WPA2-Personal		Disable	E/	Ē
Optimiza	ation								
Captive	portal								
RF Optin	mization								
Device s	etting								
Uploadii Configui	ng ration								
Firmwar	e Upgrade								
Undefined AP									

Figure 1-19 Network's SSID List

Because this configuration wasn't uploaded to the access points in this network, red circle icons (•) will be displayed right next to the **Network** (D-Link) and **Site** (HQ) names. In the next section, we'll discuss how to add new access

points to the network. To upload the new configuration to existing access points in the network select the **Uploading Configuration** option, on the left, and then select the **Run** option, and then click the **Complete** button to apply the new settings to the existing access points immediately.

In the **Uploading Configuration** page we can decide whether we need to apply the new configuration to existing access point in the network immediately or by schedule.

					()2014-08-1	16 11:12 🙎 Sign Out/admin
Central WiFiMa	nager	Home	Configuration	System	Monitor	i About
Site	Configuration>Site	e>D-Link>HQ>Upl	loading Configuration			
D-Link HQ SSID VLAN Bandwidth Optimization	Schedule Setting Run Specify Time Specify Day date: 2014-08-1	gs 6 Tin	ne: 10 💙 : 57 💙 : 17 💙			
Captive portal RF Optimization Device setting	Day: Mon	Tue Wed	Thu Fri Sat Sun			Complete
Uploading Configuration Firmware Upgrade Undefined AP	Run Status Off/On: Next Run Time: Status:	Off N/A Complete				
	Result: Progress:	Complete(Some	e devices fail!)			

Figure 1-20 Uploading Configuration

1.7. Add Access Points in CWM using the Installation Tool

1.7.1. Export Network Profile from CWM to your Computer

To add new access points to the CWM, we have to export the network profile from CWM first. The exported file includes the authentication key and the IP address of the controller. Select **Configuration** and then click the **Export** () icon to export the network profile to your computer.

	A CONTRACTOR			○ 2014	-08-18 09:58 👤 Sign Out/admin
D Central WiFiMa	nager Home	Configuration	System	Monitor	İ About
Site	Configuration>Site>D-Link				
E D-Link					
⊞ HQ	(c)		Notwork List		
Undefined AP			NEWOK LIST		
	Network Name	Admin Member	Creator	Creat Date	Modify Delete Export
	НQ	admin	admin	2014-08-12 15:14:13	BY TO BY

Figure 1-21 Export Network Profile

When access points are located on a public site and access to the CWM is over the Internet, ensure that the **Access Address** for the CWM is a **public** IP address or domain name and not a private IP address. To verify the Access Address navigate to **System > General > Connection Settings** and double check the **Access Address** field.

				○ 2014-08-	18 09:15 👤 Sign Out/a
Central WiFiMa	nnager Home	Configuration	System	Monitor	() About
Settings	System>Settings	, in the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	,		
User Manager	General Module Database	Advanced SMTP			
	Save Your Login Settings:	1 week V Max. Online User: 5	Max Number is 10		
	AP Live Packet Settings	Auto 🗸 (Second)			
	Time Zone:	(GMT+08:00) Beijing, Chongq	ing, Hong Kong, Urumqi	~	
	Connection Settings		-		
	Access Address: Listen Port:	8090	DNS & IP) Need to re	start server when you change	
	Service Port:	64768			
					OK

Figure 1-22 Modify Access Address

1.7.2. Discover and Import the Profile to APs using the Installation Tool

The Access Point Installation Tool is an additional utility that compliments the D-Link Central WifiManager. This utility can be used to scan for new D-Link access points in the local (Layer 2) network, regardless of what IP range they are configured in, and then pre-configure them to be used in the Central WifiManager. This utility will not find access points across a Layer 3 environment. Ensure that the exported network profile file is ready on the computer running this utility.

After opening the Access Point Installation Tool, the following window will be available. Click the **Discovery** button, to scan for D-Link access points that are connected to the network with an Ethernet cable.

				Time Out 3	Retry	1 Disc	overy Set IP	Set GroupInf
Address	Model Name	HW Version	MAC Address	NetMask	SNMP	FW Version	Action	Status

Figure 1-23 AP Installation Tool (Open)

After clicking the **Discovery** button, this utility will scan the LAN (Layer 2) network for D-Link access points that are connected to the network with an Ethernet cable.

				Time Out	3 Retry	1 Disc	covery Set IF	P Set GroupIn
Address	Model Name	HW Version	MAC Address	NetMask	SNMP	FW Version	Action	Status
192.168.0.50	DAP-2660	А	C0A0BB48D400	255.255.255.0	Enable	1.05		
		Discover		1				
	1.0							
		6	Discover					
			⇒					

Figure 1-24 AP Installation Tool (Discover)

After this utility found access point, they will be displayed and can be configured.

				Time Out	3 Retry	1 Disc	overy Set IP	Set GroupInt
Address	Model Name	HW Version	MAC Address	NetMask	SNMP	FW Version	Action	Status
192.168.0.50	DAP-2660	A	C0A0BB48D400	255.255.255.0	Enable	1.05		

Figure 1-25 AP Installation Tool (Found)

To modify the IP address of the newly discovered access point, select it and click the **Set IP** button. Enter the new IP address, subnet mask, gateway address and primary DNS address in the spaces provided. Click **OK** to accept the changes made.

nstallation tool	Set IP		<u></u>	23
Address Model Name H/V Version 192.166.0.50 DAP-2660 A	Set IP IP Setting IP Mode IP Address Sub Mask Gateway DNS Advanced	Static IP Address 192 168 0 50 255 255 255 0 0 0 0 0 OK Cancel	overy Set IP	Set GroupInfo Status

Figure 1-26 AP Installation Tool (Set IP)

After clicking the **OK** button to set the IP address settings, the access point will be configured and some time will be given for the access point to restart after the new IP address settings was applied. The **Status** parameter will display

the progress of the IP address configuration and access point reboot.

This utility also allows us to upload the network data file directly to the access point to configure the group information that this access point will use to identify in which network it belongs. Click the **Set GroupInfo** button to upload the network data file. After click the **Set GroupInfo** button, we can click on the "..." button to navigate to the saved network data file on the computer and then upload it.

		_	Time Out 3 Retry 1 Discovery	Set IP Set GroupInfo
PAddress	Model Name	HW Versi	et GroupInfo	on Status
<u>✓</u> 192.168.70.52	DAP-2660	A	File: File: File: File: File: File: File:	t OK
			Advanced OK Cancel	

Figure 1-27 AP Installation Tool (Set Groupinfo)

Click the **Test** button to test if the data file is in fact a valid network data file. After clicking the **Test** button to successfully test if the network data file is valid, the following message will be displayed. Click the **OK** button to initiate the upload.

			Time Out 3 Retry 1 Di	scovery Set IP	Set GroupInt
P Address	Model Name	HW Versi	Set GroupInfo	Action	Status
<u> </u>			File: D:10-Link-HQ.dat Server connection test Each port can detect whether the server is connected properly, please click test start checking Check portOK Check portOK Test Advanced OK Cancel		

Figure 1-28 AP Installation Tool (Test, OK)

After clicking the **OK** button, the network data file will be uploaded, the access point will be configured based on the settings within the data file, and will then reboot. The **Status** parameter will display the progress of the configuration.

		1		Time Out 3	Retry	1 Disc	overy Set IP	Set Groupin
P Address	Model Name	HW Version	MAC Address	NetMask	SNMP	FW Version	Action	Status
192.168.70.52	DAP-2660	A	C0A0BB48D400	255.255.255.0	Enable	1.05	Config Group Info	15%



1.7.3. Verify Access Points Managed by the CWM

To verify which access points are connected to which sites, navigate to **Home > Network** (Site) **> Site** (D-Link). Online access point will display a blue icon () in the **Status** field and offline access point will display a grey icon () in the **Status** field.



Figure 1-30 Verify Access Points

Additional information displayed for each access point on this page is the **Group Name**, **Client**, **Channel**, **Last Check-in**, **Channel**, **IP Address**, **MAC Address**, **Model Name** and firmware **Version**.

Scenario 2 - Captive Portal and User Authentication

The **Captive Portal** can provide wireless access to guest users. This feature is frequently used in enterprise, campus and hospital network environments. The objectives in this scenario are as follow:

- Understand how to use captive portal
- Understand how to configure local data base and passcode authentication.



Figure 2-1 Captive Portal and User Authentication Network Layout

The overview of the configuration steps for Captive Portal is as follows:

- 1. Configure Captive Portal
- 2. Configure Local Database Authentication
- 3. Configure Passcode Authentication

2.1. Configure Captive Portal

To configure the **Captive Portal** settings, navigate to **Configuration > Site > Network** (D-Link) **> Site** (HQ). Select the **Web Redirection** option to enable web redirection. Enter a **Web Site** (www.google.com) in the space provided. To use an image file, click the **Browse** button and upload the image file (located on the local computer). Click the **Save** button to accept the changes made.

Configuration>Site>D-Link	>HQ>Captive portal			
Web Redirection Web Site Upload picture from file :	V www.google.com	瀏覽	(picture file type:jpg,size:<300k)	Save



2.2. Configure Local Database Authentication

In this section we'll create a new guest SSID and configure this SSID to use the local database for authentication. To create a new SSID, navigate to **Configuration > Site** (D-Link) **> Network** (HQ).

						2014-08-16 1	1:07 👱 Sig	n Out/admin
D Central WiFiMa	nager	Home	Conf	iguration	System	Monitor	Abou	л
Site	Configurati	on>Site>D-Link>HQ>	SSID					
⊡ D-Link ● ⊡ HQ ●								•
SSID	Index							Delete
VLAN	Primary	D-Link HQ	5GHz	WPA2-Personal		Disable	E!	Ē
Bandwidth	Primary	D-Link HQ	2.4GHz	WPA2-Personal		Disable	E!	Ē
Optimization								
Captive portal								
RF Optimization								
Device setting								
Uploading Configuration								
Firmware Upgrade								
Undefined AP								

Figure 2-3 Create Guest SSID (Local Database Authentication)

To create a new 2.4GHz guest **SSID** (DHQ_Guest), select the existing **Network** (HQ) and click the e button. Select the **Band** (2.4G), **Index** (SSID1), enter the **SSID** (DHQ_Guest), and configure the wireless security settings. In this example we used **Open System** for wireless security. Click **Save** to apply the settings.

Configuration>Site>D-Link>	>HQ>SSID
■ Basic Settings Wireless Settings	
Band	2.4G 🗸
Index	SSID1 V
SSID	DHQ_Guest
SSID Visibility	Enable 🔽
WMM (Wi-Fi Multimedia)	Enable 🗸
Security	Open System



In User Authentication section, select Username/Password. To prevent guest users from accessing your intranet, enter the intranet's IP ranges in the **Restricted Subnets** spaces provided. Enter the new guest account's Username and **Password** in the spaces provided. Select the **Group** called **Guest** and click the **Add** button to add the new guest user account to the table. Click the **Save** button to accept the changes made.

If the Group called Manager was selected, this guest user account would have had access to the restricted subnets.

User Authentication				
Authentication Type: U -Local Settings IP Filter Settings Restricted Subnets (r 1,10.1.1.0/24 User/Password Rule	Each Contexample: 192.168.0.0/16)	figuration Only Allow One	e SSID to Use Pass	code For Authentication
Username: Password:	guest			
Group	Guest Add Clear			
Username	Group	Modify	Delete	

Figure 2-5 Configuration Guest SSID User Authentication

Navigate to **Configuration > Site** (D-Link) **> Network** (HQ) and select the **Upload Configuration** option in the left menu. Then select the **Run** option and click the **Complete** button to upload the modified settings to the access points associated with this network.

				⊖ 2014-0	8-18 10:46 👱 Sign Out/admin
D Central WiFiMa	nager Home	Configuration	System	Monitor	i About
Site	Configuration>Site>D-Link>HQ>L	Jploading Configuration			
D-Link • HQ • SSID VLAN Bandwidth Optimization Captive portal RF Optimization Device setting	Schedule Settings Run Specify Time Specify Day date: 2014-08-18 Day: Mon Tue Wed	Time: 10 🗸 : 33 🗸 : 33 🗸 1 🔄 Thu 📄 Fri 🔄 Sat 🔜 Sun			Complete
Uploading Configuration Firmware Upgrade Undefined AP	Run Status Off/On: Off Next Run Time: N/A Status: Complete Result: Success(Cill Progress:	k to View Result)			

Figure 2-6 Uploading Configuration

2.3. Configure Passcode Authentication

2.3.1. Configure SSID for Passcode Authentication

In this section we'll create a new guest SSID and configure this SSID to use passcode authentication. To create a new SSID, navigate to **Configuration > Site** (D-Link) **> Network** (HQ).

						()2014-08-16 1	1:07 👤 Sigi	n Out/admin
D Central WiFiMa	nager	Home	Confi	iguration	System	Monitor	i Abou	, t
Site	Configuration	on>Site>D-Link>HQ>	SSID					
□ D-Link ↔								•
SSID	Index							Delete
VLAN	Primary	D-Link HQ	5GHz	WPA2-Personal		Disable	E/	ī
Bandwidth Optimization	Primary	D-Link HQ	2.4GHz	WPA2-Personal		Disable	E/	Ē
Captive portal								
RF Optimization								
Device setting								
Uploading Configuration								
Firmware Upgrade								
Undefined AP								



To create a new 2.4GHz guest **SSID** (DHQ_Passcode), select the existing **Network** (HQ) and click the **SSID** (blq_Passcode), select the **Band** (2.4G), **Index** (SSID2), enter the **SSID** (DHQ_Passcode), and configure the wireless security settings. In this example we used **Open System** for wireless security. Click **Save** to apply the settings.

Configuration>Site>D-Link	>HQ>SSID
 Basic Settings Wireless Settings 	
Band	2.4G 🗸
Index	SSID2 🗸
SSID	DHQ_Passcode
SSID Visibility	Enable 🔽
WMM (Wi-Fi Multimedia)	Enable 🔽
Security	Open System

Figure 2-8 Configure Guest SSID (Passcode)

In User Authentication section, select Passcode. Click the Save button to accept the changes made.



Figure 2-9 User Authentication (Passcode)

2.3.2. Create Front Desk Account

To create a new Front Desk User Account navigate to System > User Manager and click the obstruction.

					C 2014-08-01 14:32	2 👱 Sign Out/admin
Central WifiMa	nag	er Home	Configuration	System	Monitor	i About
Settings	Syste	m>User Manager				
User Manager					N 1	
	All Us	ers(2) Root Admin(1) Ro	oot User(0) Local Admin(0)	Local User(0) Front Desk Staff(1)	
	Us	er List				D
		UserName	Privilege	CreateDate	Resume	Action
		admin	Root Admin	2012-08-03 03:34:46	default user	E/
		John	Front Desk Staff	2014-08-01 14:14:47		
				2 total 1/1 Page		

Figure 2-10 User Manager

Enter the **UserName** (John) and **Password** (1234) for this new account in the spaces provided. Select the **Front Desk Staff** option as the **Privilege** and enter the new account's **E-mail** address in the space provided. Click the **OK** button create the new user account.

lserName: *	John	Maximum Length: 64 characters
assword: *	•••••	
Privilege:	Front Desk Staff	
-mail:	John@dlink.com	
Resume:		^
		~

Figure 2-11 Create New Front Desk Account

2.3.3. Add the Front Desk Account to the Site and Network

To add the **Front Desk Account** to the site and network navigate to **Configuration > Site** (D-Link) and click the **Modify** icon (\blacksquare).

Configuration>Site					
					Đ
	s	lite List			
Site Name	Admin Member	Creator	Creat Date	Modify	Delete
D-Link	admin	admin	2014-08-18 15:04:40	E!	

Figure 2-12 Add Front Desk Account to Site (Step 1)

After clicking the modify icon (♥), select the **Front Desk Account** and add it to the selected table by click the >> button. Click the **OK** button to accept the changes made.

Site Name	*D-Li	nk		Max char number is 50
Site Member	*	Admin Member		Selected
		John	~	admin
			>>	John
			<<	
			~	

Figure 2-13 Add Front Desk Account to Site (Step 2)

Navigate to **Configuration > Site** (D-Link) **> Network** (HQ) and click the **Modify** icon (■).

					()2014-0)8-18 16:42 👱 Sign Out/admii
	entral WiFiMc		ث 🔊	\$	<u></u>	i
		Hom	ne Configuration	System	Monitor	About
Site		Configuration>Site>D-Lin	k			
D-Link	•					•
HQ H Q	•			Notwork List		
Undefined AP				Network List		
		Network Name				Modify Delete Export
		HQ	admin	admin	2014-08-18 15:04:51	

Figure 2-14 Add Front Desk Account to Network (Step 1)

After clicking the modify icon (♥), select the **Front Desk Account** and add it to the selected table by click the >> button. Click the **OK** button to accept the changes made.

Configuration>Site>>C	reate Netw	rork				
Network Name	*HQ				Max char number is 5	0
Network Member	*	Admin Member			Selected	
		John	~		admin	~
				>>	John	
			~			~
				ОК		



2.3.4. Generate Passcode to Guest

To generate a **Passcode** for the **Front Desk Account**, we need to logout of the CWM and then log back into the CWM using the Front Desk Account's username and password. After logging back in, enter the **Passcode Quantity** (10), **Duration** (24) and **Device Limit** (2) information in the spaces provided; and click the **Generate** button.

Frontdesk>D-Link>HQ>Generate	Passcode
— Ticket Settings —	
SSID	DHQ_Passcode
Security Key	Display Security Key
Passcode Quantity	10
Duration	24 Hours
Last Active Day	2014-09-30
Device Limit	2
Generate	

Figure 2-16 Generate Passcode

On the **View** page, a list of generated passcodes for this front desk account will be displayed.

Fronto	desk>D-Link>	HQ>View									
Pass	scode List									Ē	-
		0.015									
	Passcode	SSID	Duration	User Limit	Last Active Day	Duration Remaining	Creator	Status	Edit	Delete	
	7351	DHQ_Passcode	24	2	14-09-30	not active	John		E!	Ē	
	4281	DHQ_Passcode	24	2	14-09-30	not active	John	Θ	E!	Ē	
	4669	DHQ_Passcode	24	2	14-09-30	not active	John		E/	Î	
	6470	DHQ_Passcode	24	2	14-09-30	not active	John	Θ	E!	Ē	
	4320	DHQ_Passcode	24	2	14-09-30	not active	John		E/	Ē	
	3522	DHQ_Passcode	24	2	14-09-30	not active	John	Θ	E!	Ē	
	5637	DHQ_Passcode	24	2	14-09-30	not active	John		E!	Î	
	9535	DHQ_Passcode	24	2	14-09-30	not active	John	Θ	E!	Ē	
	4295	DHQ_Passcode	24	2	14-09-30	not active	John		E/	Ē	
	6824	DHQ_Passcode	24	2	14-09-30	not active	John		E!	Ē	

Figure 2-17 Display Passcodes (Front Desk Account)

Administrators can also view the passcode list when logged back into the CWM as administrator. To view the passcode list as administrator, navigate to **Configuration > Site** (D-Link) **> Network** (HQ) **>SSID** (DHQ_Passcode). Click the **Modify** icon (**P**) and in the **User Authentication** section the list of passcodes will be displayed.

E	User Authenticati	on							
Au	thentication Type: Pass Code List—	Passcode 🔽 I	Each Configu	ration Only Al	low One SSID to U	lse Passcode For Auth	entication		
	Passcode	SSID	Duration	User Limit	Last Active Day	Duration Remaining	Creator	Status	
	7351	DHQ_Passcode	24	2	14-09-30	not active	John	9	~
	4281	DHQ_Passcode	24	2	14-09-30	not active	John	Θ	
	4669	DHQ_Passcode	24	2	14-09-30	not active	John	Θ	
	6470	DHQ_Passcode	24	2	14-09-30	not active	John	Θ	
	4320	DHQ_Passcode	24	2	14-09-30	not active	John	Θ	
	3522	DHQ_Passcode	24	2	14-09-30	not active	John	Θ	
	5637	DHQ_Passcode	24	2	14-09-30	not active	John	Θ	
	9535	DHQ_Passcode	24	2	14-09-30	not active	John	Θ	\sim

Figure 2-18 Display Passcodes (Administrator Account)

Navigate to **Configuration > Site** (D-Link) **> Network** (HQ) and select the **Upload Configuration** option in the left menu. Then select the **Run** option and click the **Complete** button to upload the modified settings to the access points associated with this network.

	and the second second			()2014-08	-18 10:46 👤 Sign Out/admin
D Central WiFiMa	nager Home	Configuration	System	Monitor	i About
Site	Configuration>Site>D-Link>HQ>Uplo	ading Configuration			
D-Link HQ SSID VLAN Bandwidth Optimization Captive portal RF Optimization Device setting Uploading Configuration Firmware Upgrade Undefined AP	Schedule Settings Run Specify Time Specify Day date: 2014-08-18 Til Day: Mon Tue Wed Run Status Off/On: Off Next Run Time: N/A	me: 10 V : [33 V : [33 V Thu Fri Sat Sun			Complete
	Status: Complete Result: <u>Success(Click</u> Progress:	to View Result)			

Figure 2-19 Uploading Configuration

Scenario 3 - Bandwidth Optimization

Bandwidth optimization allows administrators to control the wireless bandwidth usage. The **Downlink** and **Uplink Bandwidth** options allows for the limiting of the total bandwidth of access points. For more information about the various bandwidth optimization rules available in the CWM, refer to the *Central WiFiManager User Manual*.



Figure 3-1 Bandwidth Optimization Network Layout

3.1. Configure Bandwidth Optimization

To configure the Bandwidth Optimization settings, navigate to **Configuration > Site** (D-Link) **> Network** (HQ) **> Bandwidth Optimization**. At **Enable Bandwidth Optimization** select **Enable**. In the **Downlink Bandwidth** and **Uplink Bandwidth** fields enter 800Mbps. This is the bandwidth for whole AP. Select the **Rule Type** option called **Allocate maximum BW for each station**. Then select **2.4GHz** as the **Band**, and **SSID2** (DHQ_Passcode) as the **SSID**. In the **Downlink Speed** and **Uplink Speed** fields enter **1Mbits/sec**. Click the **Add** button to create the new rule and then click the **Save** button to accept the changes made.

Configuration>Site>D-Link>H	Q>Bandwidth Optimizati	on					
Enable Bandwidth Optimizatio	on Enable 🗸						
Downlink Bandwidth	800 N	lbits/sec					
Uplink Bandwidth	800 N	lbits/sec					
Add Bandwidth Optimization	Rule						
Rule Type	Allocate maximum BW fo	or each station	~				
Band	2.4 GHZ 🔽						
SSID	SSID 2						
Downlink Speed	Mbits/se	c 💌					
Uplink Speed	Mbits/se	c 🗸					
	Add Clear						
Bandwidth Optimization Rul	es						
Band Type		SSID	Downlink Speed	Uplink Speed	Modify	Delete	

Figure 3-2 Bandwidth Optimization Settings

Navigate to **Configuration > Site** (D-Link) **> Network** (HQ) and select the **Upload Configuration** option in the left menu. Then select the **Run** option and click the **Complete** button to upload the modified settings to the access points associated with this network.

				C 2014-08	I-18 10:48 👤 Sign Out/admin
D Central WifiMa	anager Home	Configuration	System	Monitor	i About
Site	Configuration>Site>D-Link>HQ	>Uploading Configuration			
D-Link P HQ P SSID VLAN Bandwidth Optimization Captive portal RF Optimization Device setting Uploading Configuration Firmware Upgrade	Schedule Settings Run Specify Time Specify Day date: 2014-08-18 Day: Mon Tue We Run Status Off/On: Off Nave Bun Time: N/A	Time: 10 V : [38 V : [33 V ed Thu Fri Sat Sun			Complete
Undefined AP	Status: Complete Result: <u>Success(C</u> Progress:	Slick to View Result)			

Figure 3-3 Uploading Configuration

Scenario 4 - Add Remote AP for CWM

Management

The CWM can manage remote access points over a site-to-site VPN or behind a NAT router without a VPN connection.



Figure 4-1 Remote AP for CWM Management Network Layout

The overview of the configuration steps for this configuration is as follows:

- 1. Configure Network Device Settings
- 2. Create New Site and Network for Branch Office
- 3. Export Network Profile then Import the Profile to the Remote AP

4.1. Configure Network Device Settings

The following port numbers must be opened in the firewall at the site where the CWM server is located in order for remote access points to access the CWM server.

- UDP 161 (SNMP port)
- UDP 162 (SNMP trap port)
- UDP 514 (Syslog port)
- UDP 8090 (Listen port)
- UDP 64768 (Service port)
- TCP 9000, Enable ftp-ALG (Manager port)
- TCP 443 (HTTPS, Management port)

Additionally, if the CWM server uses a private IP address, the public IP address must be mapped to the private IP address on the firewall.

At remote site, the following ports also need to be opened.

- UDP 161 (SNMP port)
- UDP 162 (SNMP trap port)
- UDP 514 (Syslog port)
- UDP 8090 (Listen port)
- UDP 64768 (Service port)
- TCP 9000, Enable ftp-ALG (Manager port)

4.2. Create New Site and Network for Branch Office

					O 2014-08	-26 16:23 🎴	Sign Out/
D Centr Wifi	al Manager	Home	Configuration	System	Monitor		i About
Site	Configurat	ion>Site					
🗉 D-Link 🛛 😐							
 D-Link Branch 				Site List			
Undefined AP	S			Creator			
		D-Link	admin	admin	2014-08-26 09:49:48	E/	Ē
	D-I	ink Branch	admin	admin	2014-08-26 16:22:06	B	前

To create a new Site (D-Link Branch), select Configuration and then click the is button.

Figure 4-2 Create New Site (D-Link Branch)

To create a new **Network** (Branch-A), select the newly created **Site** (D-Link Branch) and click the **o** button.

					G 2014-08	3-26 16:25 🚬 Sign Outradmin
	ntral JifiMa	nager 🗍	\$	\$	<u></u>	i
		Home	Configuration	System	Monitor	About
Site		Configuration>Site>D-Link	Branch			
	•					6
 D-Link Branch 	•			Network List		
🗉 Branch A	•	Network Name				Modify Delete Export
Undefined AP		Branch A	admin	admin	2014-08-26 16:22:34	

Figure 4-3 Create New Network (Branch-A)

4.3. Export Network Profile then Import the Profile to the Remote AP

To export the network profile select **Configuration > Site** (D-Link Branch) and then click the **Export** () icon to export the network profile to your computer. Provide this exported network profile file to the remote site installer.

					C 2014-0	8-26 16:25 👱 Sign Out/adm
	ntral JifiMc	inager	*	•	Resider	i
		Hor	ne Conliguration	System	MONITO	About
Site		Configuration>Site>D-Lir	hk Branch			
D-Link	•					•
D-Link	•			Network List		
Branch				Network List		
Branch A	•	Network Name				Modify Delete Export
Undefined AP		Branch A	admin	admin	2014-08-26 16:22:34	BY 🛅 BY

Figure 4-4 Export Network Profile to PC

At remote site, ensure that the exported network profile file is available on the computer used to configure the access point(s). Run the **Access Point Installation Tool**.

After opening the Access Point Installation Tool, the following window will be available. Click the **Discovery** button, to scan for D-Link access points that are connected to the network with an Ethernet cable.

				Time Out 3	Retry 1	Disc	overy Set IP	Set GroupInf
^o Address	Model Name	HVV Version	MAC Address	NetMask	SNMP	FW Version	Action	Status

Figure 4-5 AP Installation Tool (Open)

After clicking the **Discovery** button, this utility will scan the LAN (Layer 2) network for D-Link access points that are connected to the network with an Ethernet cable.

				Time Out	3 Retry	1 Disc	overy Set I	P Set Grouph
Address	Model Name	HW Version	MAC Address	NetMask	SNMP	FW Version	Action	Status
192.168.0.50	DAP-2660	Α	C0A0BB48D400	255.255.255.0	Enable	1.05		
		Discover						
			A					
			Discover					
			-					

Figure 4-6 AP Installation Tool (Discover)

After this utility found access point, they will be displayed and can be configured.

				Time Out 3	B Retry	1 Disc	overy Set IP	Set GroupIn
Address	Model Name	HW Version	MAC Address	NetMask	SNMP	FW Version	Action	Status
192.168.0.50	DAP-2660	A	C0A0BB48D400	255.255.255.0	Enable	1.05		

Figure 4-7 AP Installation Tool (Found)

To modify the IP address of the newly discovered access point, select it and click the **Set IP** button. Enter the new IP address, subnet mask, gateway address and primary DNS address in the spaces provided. Click **OK** to accept the changes made.

Installation tool		(Set IP		X
Installation tool Address Address IP Address IP 2.168.0.50	Model Name DAP-2660	HW Versior A	Set IP IP Setting IP Mode IP Address Sub Mask Gateway DNS Advanced	Static IP Address Image: Constraint of the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second seco	Dvery Set IP Set GroupInfo Action Status

Figure 4-8 AP Installation Tool (Set IP)

After clicking the **OK** button to set the IP address settings, the access point will be configured and some time will be given for the access point to restart after the new IP address settings was applied. The **Status** parameter will display the progress of the IP address configuration and access point reboot.

This utility also allows us to upload the network data file directly to the access point to configure the group information that this access point will use to identify in which network it belongs. Click the **Set GroupInfo** button to upload the network data file. After click the **Set GroupInfo** button, we can click on the "..." button to navigate to the saved network data file on the computer and then upload it.

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			Time Out 3 Retry 1	Discovery Set IP	Set Groupl
Address	Model Name	HVV Versi	Set GroupInfo	Action	Status
			File: Each port can detect whether the server is connected proper please click test start checking Test		
			Advanced OK Cancel		

Figure 4-9 AP Installation Tool (Set Groupinfo)

Click the **Test** button to test if the data file is in fact a valid network data file. After clicking the **Test** button to successfully test if the network data file is valid, the following message will be displayed. Click the **OK** button to initiate the upload.

			Time Out 3 Retry 1 Discovery	Set IP Set GroupIn
PAddress	Model Name	HVV Versi	Set GroupInfo	Status
<u>✓</u> 192.168.70.52	DAP-2660	A	File: D:VD-Link-HQ.dat Server connection test Each port can detect whether the server is connected properly, please click test start checking Check portOK	
			Advanced OK Cancel	

Figure 4-10 AP Installation Tool (Test, OK)

After clicking the **OK** button, the network data file will be uploaded, the access point will be configured based on the settings within the data file, and will then reboot. The **Status** parameter will display the progress of the configuration.

				Time Out 3	Retry	1 Disc	overy Set IP	Set GroupIn
Address	Model Name	HW Version	MAC Address	NetMask	SNMP	FW Version	Action	Status
192.168.70.52	DAP-2660	A	C0A0BB48D400	255.255.255.0	Enable	1.05	Config Group Info	15%

Figure 4-11 AP Installation Tool (Uploading, Reboot)