

Compound Authentication

Compound Authentication

- **[Review] Two types of Port Authentication:**
 - 802.1x Authentication
 - Switch sends username and credential inputted by users to a RADIUS server
 - MAC Authentication
 - Switch sends credentials to RADIUS server using device MAC address

Compound Authentication

- **What is Compound Authentication?**
 - Sets the authentication requirement for client authentication if both 802.1x and MAC authentication are **enabled at the same time**
 - Compound Authentication Modes:
 - Strict (default) – clients must pass BOTH 802.1x and MAC authentication to access network
 - Loose – clients need to pass EITHER 802.1x or MAC authentication to access network

Compound Authentication

- Web GUI

Advance Application

Port Authentication

Compound Auth. Mode

Compound Authentication Mode		Port Authentication
Port	Compound Authentication Mode	
*	Strict	▼
1	Strict	▼
2	Strict	▼
3	Strict	▼
4	Strict	▼
5	Strict	▼
6	Strict	▼
7	Strict	▼
8	Strict	▼
9	Strict	▼
10	Strict	▼
11	Strict	▼
12	Strict	▼

Compound Authentication

- **When is Strict compound mode applied?**
 - Strict compound mode only applies when both Port Authentication methods are **globally** and **per-port** enabled
 - Failing to enable both port authentication methods on the same port will cause strict compound mode to behave as **loose** mode

Compound Authentication

- When is Strict compound mode applied?
 - Example:

Compound Authentication Mode		Port Authentication
Port	Compound Authentication Mode	
*	Strict	
1	Strict	

802.1x		Port Authentication						
Active	<input checked="" type="checkbox"/>							
EAPOL flood	<input type="checkbox"/>							
Port	Active	Max-Req	Reauth	Reauth-period secs	Quiet-period secs	Tx-period secs	Supp-Timeout secs	
*	<input type="checkbox"/>		On					
1	<input type="checkbox"/>	2	On	3600	60	30	30	
2	<input checked="" type="checkbox"/>	2	On	3600	60	30	30	

MAC Authentication		Port Authentication
Active	<input checked="" type="checkbox"/>	
Name Prefix		
Delimiter	Dash	
Case	<input checked="" type="radio"/> Upper <input type="radio"/> Lower	
Password Type	<input checked="" type="radio"/> Static <input type="radio"/> MAC-Address	
Password	zyxel	
Timeout	0	
Port	Active	Trusted-VLAN List
*	<input type="checkbox"/>	
1	<input checked="" type="checkbox"/>	

- Result: Device/User on port 1 can **pass** strict compound mode with MAC authentication alone

Compound Authentication

- **Enable Guest VLAN and Compound Authentication**
 - With guest VLAN enabled, switch needs to decide which failure combination results in sending traffic to **PVID** or **Guest VLAN**
 - Failure to authenticate will never result in port blocked

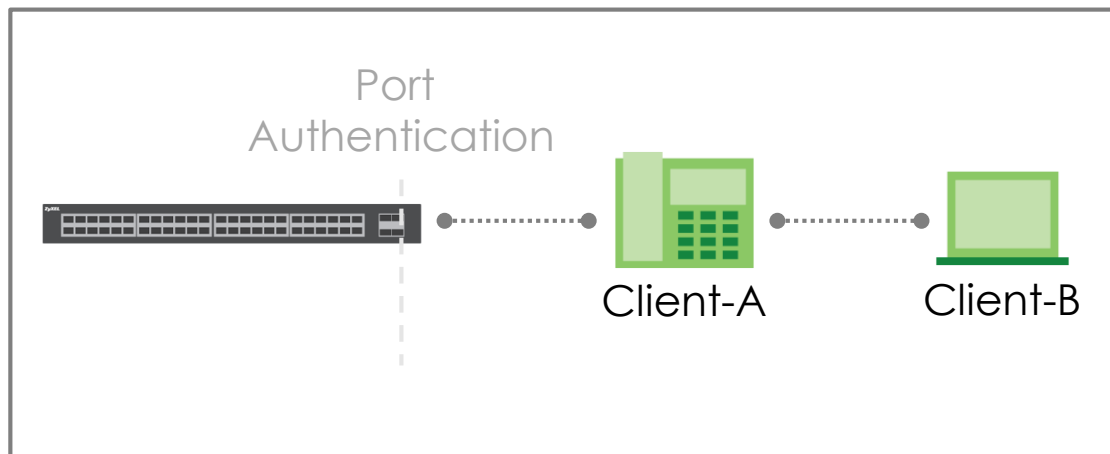
Compound Auth. Strict		MAC Authentication	
		PASS	FAIL
802.1x	PASS	PVID	Guest VLAN
	FAIL	Guest VLAN	Guest VLAN

Compound Auth. Loose		MAC Authentication	
		PASS	FAIL
802.1x	PASS	PVID	PVID
	FAIL	PVID	Guest VLAN

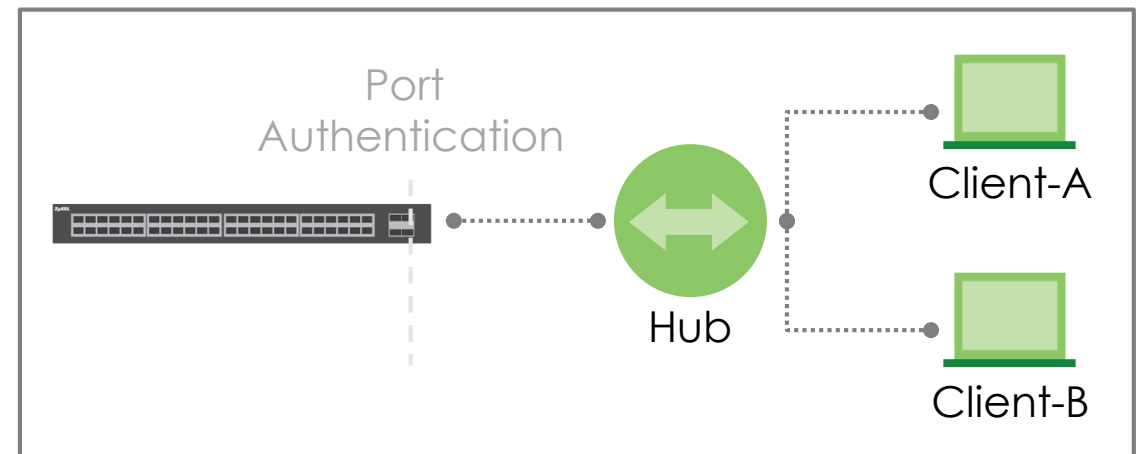
Compound Authentication

- **Multiple Host and Strict Compound Authentication**
 - Set Host Mode to **Multi-secure** on Guest VLAN settings if multiple clients are connected under a switch port

Multiple Clients: Uplink/LAN port



Multiple Clients: Network Hub



Compound Authentication

- **Guest VLAN and Strict Compound Authentication**

- Result Matrix:

Compound Auth. Strict	Client-A (1 st)		Client-B (2 nd)		Client-A Result	Client-B Result
	MAC Auth.	802.1x	MAC Auth.	802.1x		
Multi-Host	V	V	V	V	PVID	PVID
	V	V	--	--	PVID	PVID
	V			V	Guest VLAN	Guest VLAN
					Guest VLAN	Guest VLAN
Multi-Secure	V	V	V	V	PVID	PVID
	V	V			PVID	Guest VLAN
	V			V	Guest VLAN	Guest VLAN
					Guest VLAN	Guest VLAN

Compound Authentication

- Guest VLAN and Loose Compound Authentication**

- Result Matrix:

Compound Auth. Loose	Client-A (1 st)		Client-B (2 nd)		Client-A Result	Client-B Result
	MAC Auth.	802.1x	MAC Auth.	802.1x		
Multi-Host	V	V	V	V	PVID	PVID
	V	V	--	--	PVID	PVID
	V		--	--	PVID	PVID
					Guest VLAN	Guest VLAN
Multi-Secure	V	V	V	V	PVID	PVID
	V	V			PVID	Guest VLAN
	V			V	PVID	PVID
					Guest VLAN	Guest VLAN