

Security Rack

Physical Hardware Specification

All of Internetwork Expert's CCIE Security products use the same hardware specification used in the actual CCIE Security Lab exam. This includes six routers with FastEthernet and Serial interfaces and firewall appliances. The routers run a mixture of 12.4T IOS with the ADVANCED SECURITY and ADVANCED ENTERPRISE SERVICES Feature Set. In addition to the six routers two Catalyst 3550 series switches running the IP SERVICES images are included.

Specific security-related hardware is also included, which consists of a an IPS 4235 running 6.x software, two ASA 5510 firewalls running 8.x software with Security Plus license, a Windows 2000/2003 server for AAA/CA, and GUI access to the IPS via IPS Manager Express and ASAs via HTTP/HTTPS. A separate Test PC is provided for NAC/VPN verification as well as other testing purposes. It runs Windows XP with Cisco VPN Client, Cisco Trust Agent and Wireshark protocol analyzer software installed.

As per the actual CCIE lab hardware specification our products and classes also include various external devices that are not within the control of the candidate. These devices include a Frame Relay switch and three backbone routers to inject routes and facilitate in the testing of security related features.

Although the logical topology changes on a per lab basis the same physical topology is used throughout the workbook. Therefore once your lab has been physically wired to meet the specification there is no need to change the cabling.

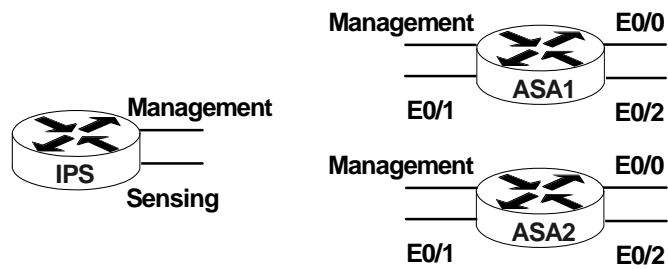
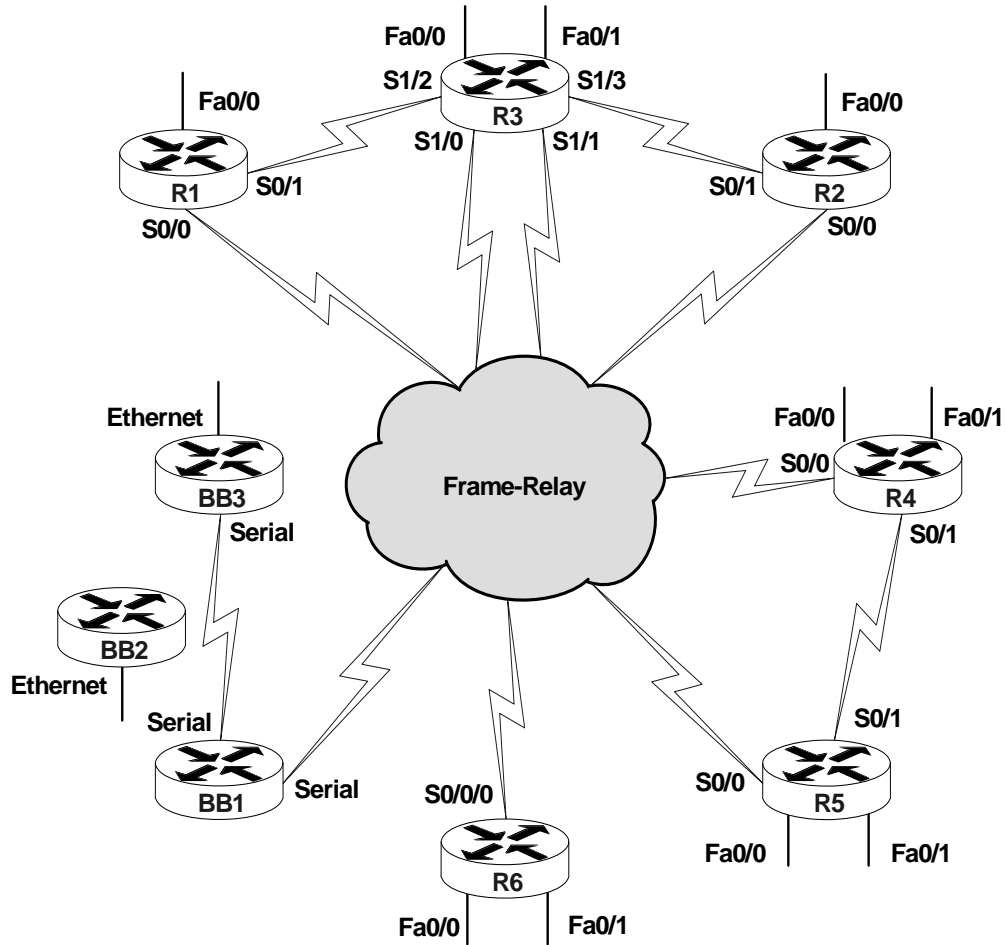
IOS Versions

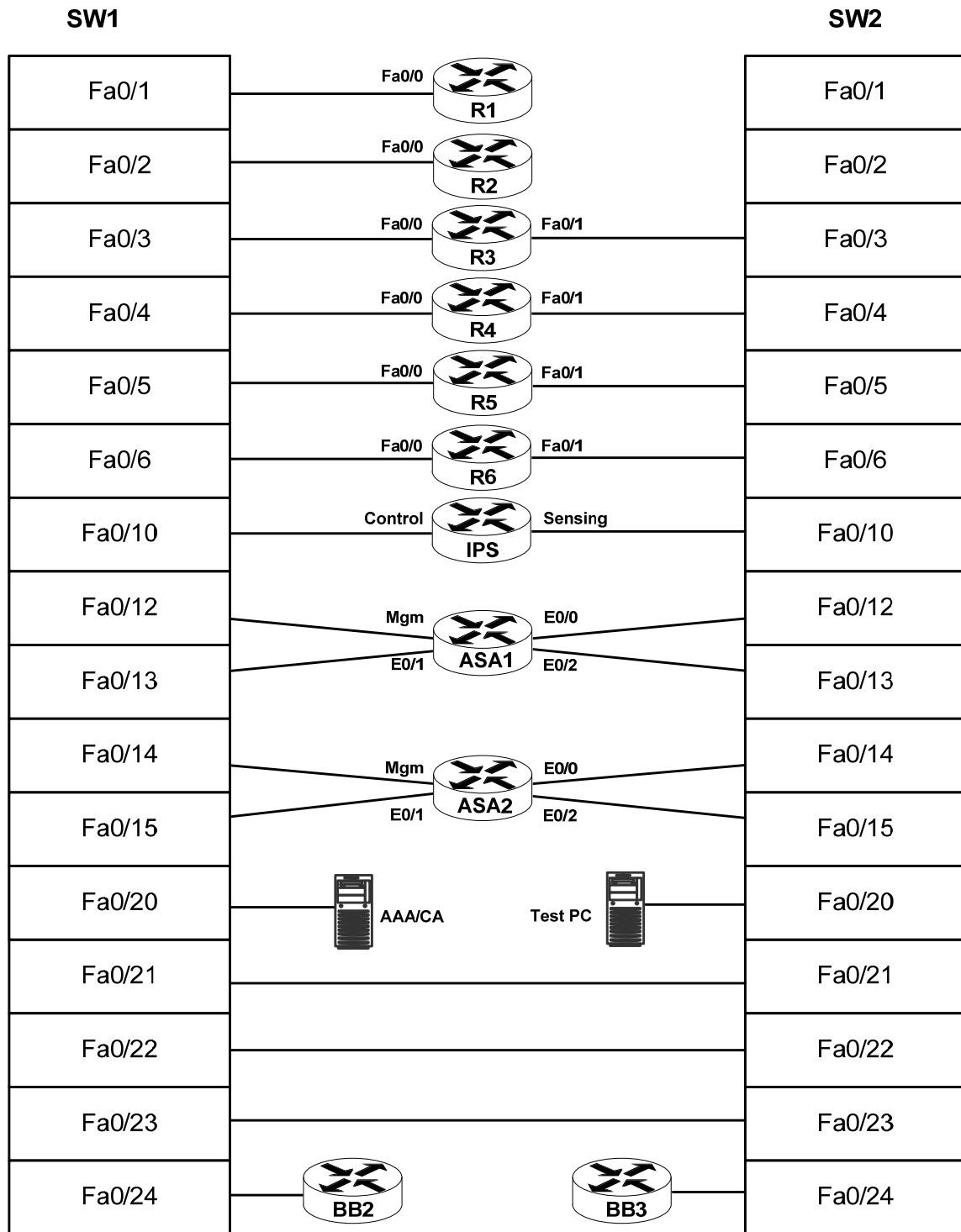
Device	Version	Feature Set	Interfaces
R1	12.4(15)T	ADV. SECURITY	1 - FastEthernet 2 - Serial
R2	12.4(15)T	ADV. SECURITY	1 - FastEthernet 2 - Serial
R3	12.4(15)T	ADV. SECURITY	2 - FastEthernet 4 - Serial
R4	12.4(15)T	ADV. SECURITY	2 - FastEthernet 2 - Serial
R5	12.4(15)T	ADV. SECURITY	2 - FastEthernet 2 - Serial
R6	12.4(24)T	ADV. ENT. SERVICES	2 - FastEthernet 1 - Serial
SW1	12.2(50)SE	IP SERVICES	24 - FastEthernet
SW2	12.2(50)SE	IP SERVICES	24 - FastEthernet
IPS	6.0(5)E2	N/A	2 - GigabitEthernet
ASA1	8.0(4)	N/A	4 - Ethernet
ASA2	8.0(4)	N/A	4 - Ethernet
BB1	12.2(15)T17	IP PLUS	8 - Serial
BB2	12.2(15)T17	IP PLUS	1 - Ethernet
BB3	12.2(15)T17	IP PLUS	1 - Serial 1 - Ethernet
<p>* BB1 and BB3 will need to peer via iBGP with each other. This can be done over any interface, such as Ethernet, Serial, or even an AUX port to AUX port connection</p>			

Hardware Specifications

Device	Platform	Flash/DRAM	Modules
R1	2611XM	32/128	2x WIC-1T
R2	2611XM	32/128	2x WIC-1T
R3	2611XM	32/128	1x NM-4A/S
R4	2611XM	32/128	2x WIC-1T
R5	2611XM	32/128	2x WIC-1T
R6	2811	64/256	1x WIC-1T
SW1	3550-24/3560-24	Default	
SW2	3550-24/3560-24	Default	
IPS	4235/4240	Default	
ASA1	5510	Default	
ASA2	5510	Default	
BB1	2522	16/16	
BB2	2501	16/16	
BB3	2501	16/16	

Lab Physical Cabling





Lab Physical Interface Connections

Frame Relay Switch Configuration					
Local Router	Local Interface	Local DLCI	Remote Router	Remote Interface	Remote DLCI
R1	S0/0	102	R2	S0/0	201
R1	S0/0	103	R3	S1/0	301
R1	S0/0	113	R3	S1/1	311
R1	S0/0	104	R4	S0/0	401
R1	S0/0	105	R5	S0/0	501
R2	S0/0	202	R1	S0/0	102
R2	S0/0	203	R3	S1/0	302
R2	S0/0	213	R3	S1/1	312
R2	S0/0	204	R4	S0/0	402
R2	S0/0	205	R5	S0/0	502
R3	S1/0	301	R1	S0/0	103
R3	S1/0	302	R2	S0/0	203
R3	S1/0	304	R4	S0/0	403
R3	S1/0	305	R5	S0/0	503
R3	S1/1	311	R1	S0/0	113
R3	S1/1	312	R2	S0/0	213
R3	S1/1	314	R4	S0/0	413
R3	S1/1	315	R5	S0/0	513
R4	S0/0	401	R1	S0/0	104
R4	S0/0	402	R2	S0/0	204
R4	S0/0	403	R3	S1/0	304
R4	S0/0	413	R3	S1/1	314
R4	S0/0	405	R5	S0/0	504
R5	S0/0	501	R1	S0/0	105
R5	S0/0	502	R2	S0/0	205
R5	S0/0	503	R3	S1/0	305
R5	S0/0	513	R3	S1/1	315
R5	S0/0/0	504	R4	S0/0	405
R6	S0/0/0	51	BB1	S0	51
R6	S0/0/0	100	BB1	S0	100
R6	S0/0/0	101	BB1	S0	101
R6	S0/0/0	201	BB1	S0	201
R6	S0/0/0	301	BB1	S0	301
R6	S0/0/0	401	BB1	S0	401

Ethernet Connections			
Local Device	Local Interface	Remote Device	Remote Interface
R1	Fa0/0	SW1	Fa0/1
R2	Fa0/0	SW1	Fa0/2
R3	Fa0/0	SW1	Fa0/3
R3	Fa0/1	SW2	Fa0/3
R4	Fa0/0	SW1	Fa0/4
R4	Fa0/1	SW2	Fa0/4
R5	Fa0/0	SW1	Fa0/5
R5	Fa0/1	SW2	Fa0/5
R6	Fa0/0	SW1	Fa0/6
R6	Fa0/1	SW2	Fa0/6
IPS	C&C	SW1	Fa0/10
IPS	Sensing	SW2	Fa0/10
ASA1	Mgmt	SW1	Fa0/12
ASA1	E0/1	SW1	Fa0/13
ASA1	E0/0	SW2	Fa0/12
ASA1	E0/2	SW2	Fa0/13
ASA2	Mgmt	SW1	Fa0/14
ASA2	E0/1	SW1	Fa0/15
ASA2	E0/0	SW2	Fa0/14
ASA2	E0/2	SW2	Fa0/15
AAA/CA	Inside	SW1	Fa0/20
Test PC	Inside	SW2	Fa0/20
SW1	Fa0/23	SW2	Fa0/23
BB3	E0	SW1	Fa0/24
BB2	E0	SW2	Fa0/24