

### Assessment Authoring - Table of Specification (TOS)

The Table of Specification (TOS) is a high-level design template for a given assessment. It identifies the claims, components skills, targeted number tasks needed, and the knowledge or skill level desired for each task. Scoping information is also provided, in most cases, and indicates the environment, features and details associated with the specified claims.

Assessment design specifications in the TOS allow us to make inferences about what the students can actually do. Because some outcomes are more important than others in making those judgments, each claim is weighted based on course content, required job skills and certification coverage. Using the TOS helps to ensure that assessed tasks are relevant to the environment in which the student will work.

In the example below, 25% of the Network Fundamentals Final exam should cover skills from claim 0.1.0. For a 50 question exam, approximately 13 tasks should cover skills that support claim 0.1.0. Distribution of tasks amongst the component skills is determined during the design phase. Tasks for each claim or component skill can be either declarative, simple procedural or complex procedural depending on the purpose of exam and the type of claim.

CCNA Exploration Network Fundamentals Assessment Claims rev 1				
Final Exam				
Claim#	Claim/Component skill	Scope	% Coverage on Exam forms	Targeted # of tasks on exam form
0.1.0	<b>Use the OSI and TCP/IP models and their associated protocols and applications to explain how data flows in a network.</b>	process of encapsulation, source and destination address identification	25%	13
0.1.1	Explain how data is delivered in common applications such as email, web browsers, FTP software and Telnet.	Telnet, browser apps, email,		
0.1.2	Describe the encapsulation/decapsulation processes			
0.1.3	Describe the purpose and basic operation of the Application Layer services and protocols.	telnet, DNS, HTTP, SMTP, POP, DHCP, HTML		
0.1.4	Determine the source and destination address and other important fields of a protocol data unit as it is processed in a network.			
0.1.5	Explain the operation and benefits of Transport Layer services and protocols.	TCP and UDP		

**Claim**  
desired outcome

**Component Skill**  
supporting skill

**Desired Claim Coverage**

CCNA Exploration Network Fundamentals Assessment Claims rev 1				
Final Exam				
Claim#	Claim/Component skill	Scope	Targeted % Coverage on Exam forms	Targeted # of tasks on exam form
<b>0.1.0</b>	<b>Use the OSI and TCP/IP models and their associated protocols and applications to explain how data flows in a network.</b>	process of encapsulation, source and destination address identification	<b>25%</b>	<b>13</b>
0.1.1	Explain how data is delivered in common applications such as email, web browsers, FTP software and Telnet.	Telnet, browser apps, email,		
0.1.2	Describe the encapsulation/decapsulation processes			
0.1.3	Describe the purpose and basic operation of the Application Layer services and protocols.	telnet, DNS, HTTP, SMTP, POP, DHCP, HTML		
0.1.4	Determine the source and destination address and other important fields of a protocol data unit as it is processed in a network.			
0.1.5	Explain the operation and benefits of Transport Layer services and protocols.	TCP and UDP		
0.1.6	Explain the operation and benefits of Network Layer services and protocols.			
0.1.7	Explain the operation and benefits of Data Link Layer services and protocols.			
0.1.8	Describe the function and characteristics of the media access control method used by Ethernet protocol.	Shared Media ONLY - CSMA/CD; non-shared - no control		
0.1.9	Describe the purpose of ARP and ICMP protocols and their role in processing data in networks.			
0.1.10	Compare and contrast OSI to the TCP/IP model.	differentiate application layer services and Layer 2/3 services, no historical references.		
<b>0.2.0</b>	<b>Describe the operation of data networks.</b>		<b>15%</b>	<b>8</b>
0.2.1	Describe differences between and similarities of LAN/WAN basic operation and features.			
0.2.2	Describe the characteristics of and differences among Client/Server networks, peer-to-peer networks, Client/Server applications and peer-to-peer applications.			
0.2.3	Describe basic routing concepts.	packet forwarding, route lookup process		
0.2.4	Describe basic LAN switching concepts.	selective forwarding, MAC-table, address		
0.2.5	Describe the purpose and functions of various network devices.	router, switch, hosts		

0.2.6	Describe the differences and characteristics of physical and logical topologies.			
<b>0.3.0</b>	<b>Implement an IPv4 addressing scheme to meet network requirements.</b>		<b>20%</b>	<b>10</b>
0.3.1	Describe the need and role of addressing in a network.	Port, IP, and MAC addressing		
0.3.2	Create and apply an addressing design to an internetwork scheme to a network.	calculate net, max number of hosts and broadcasts addresses		
0.3.3	Assign and verify valid IP addresses to hosts, servers, and networking devices in a LAN environment.	VLSM IP addressing, include using ipconfig,		
0.3.4	Describe the operation, benefits, and implications of using private and public IP addressing.	identify private addresses, need to translate private to access internet,...		
0.3.5	Identify and correct common problems associated with IP addressing and host configurations.	wrong mask, wrong address, wrong gateway,...		
<b>0.4.0</b>	<b>Create, apply, and verify a basic IOS configuration to a Cisco device.</b>		<b>20%</b>	<b>10</b>
0.4.1	Describe the purpose of the Cisco IOS.			
0.4.2	Describe and access IOS modes.	User EXEC. Privileged EXEC, global config, interface config		
0.4.3	Remove a configuration from an IOS device.	erase start, reload		
0.4.4	Apply device name.	hostname		
0.4.5	Apply a basic device interface configuration.	description, IP address (router or VLAN 1), no shut		
0.4.6	Implement router and switch basic device security.	enable, enable secret, VTY password, console password, MOTD banner		
0.4.7	Manage IOS configuration files.	edit, copy commands, help features		
<b>0.5.0</b>	<b>Implement a small network.</b>		<b>20%</b>	<b>10</b>
0.5.1	Establish a console connection to an IOS device.	cable, configure terminal emulator, ...		
0.5.2	Configure, and verify operation status of network devices.	ip address, no shut, interface description, show ip interface (brief), show run, ping,		
0.5.3	Select the appropriate cables, ports, and connectors to connect network devices and hosts.			
0.5.4	Configure and verify operation of a host.	ipconfig, netstat, tracert, route print		
0.5.5	Select the network devices for a given network specification.	router, switch, hub		
0.5.6	Create basic network documentation.	Diagram, Network baseline (from ping,		
			<b>100%</b>	<b>50</b>