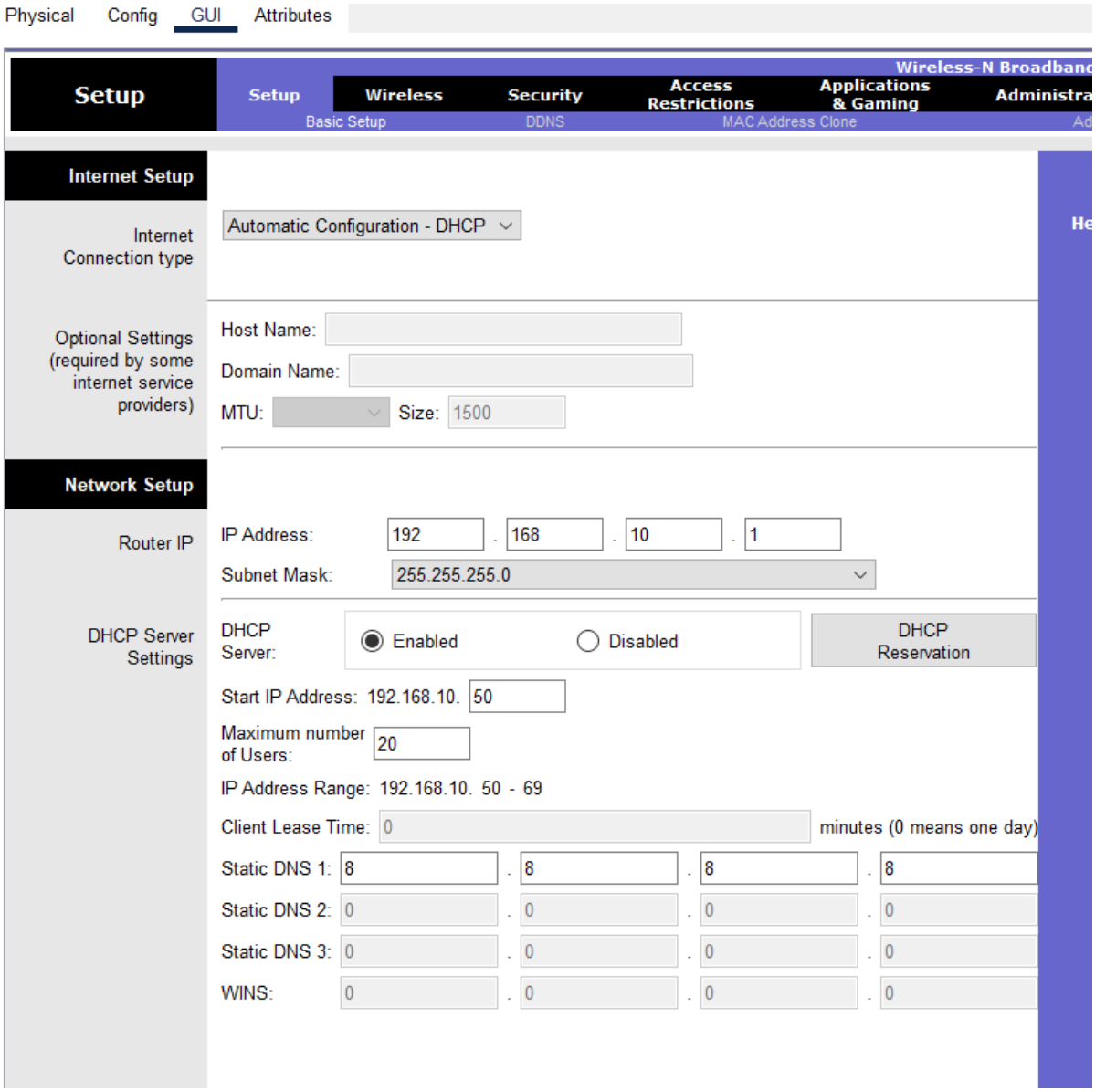
1 Project Overview

The network is built around a single Wireless Router which acts as the Gateway, Firewall, and DHCP Server for the entire 192.168.10.0/24 subnet. A Cisco Switch is used to expand the number of wired ports available.

2 Router & Network Services Configuration

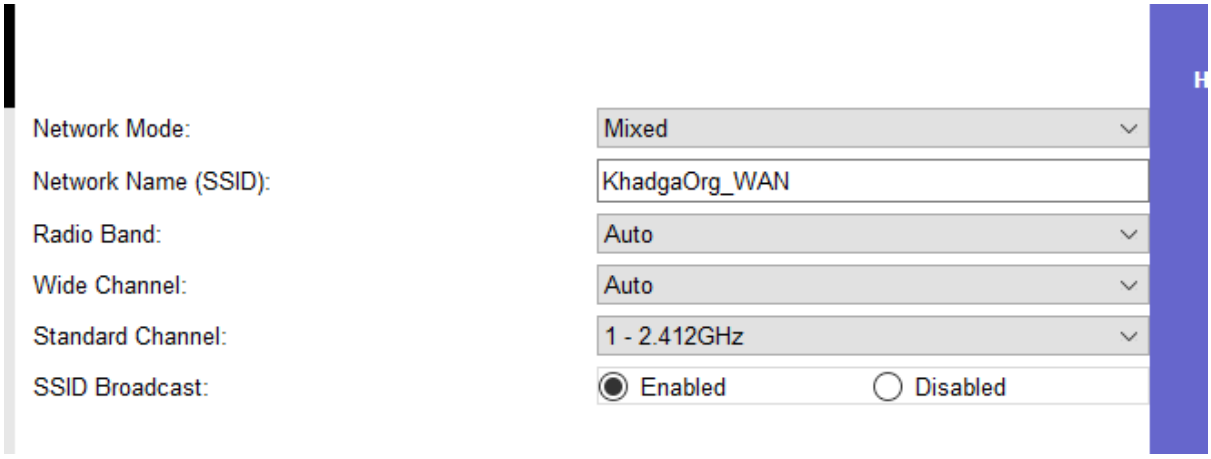
Setting	**Value**	**Functions**
Router (Gateway) IP	192.168.10.1	The local access IP for the router and the gateway for the network.
Subnet Mask	255.255.255.0	Standard Class C subnet mask.
DHCP Server	Enabled	Automatically assigns IP addresses to all connected devices (wired and wireless).
Start IP Address	192.168.10.50	The first IP address handed out by DHCP.
Maximum DHCP Users	20	The maximum number of devices that can connect to the network.
DNS Server 1	8.8.8.8	Public DNS server (Google DNS) for name resolution.

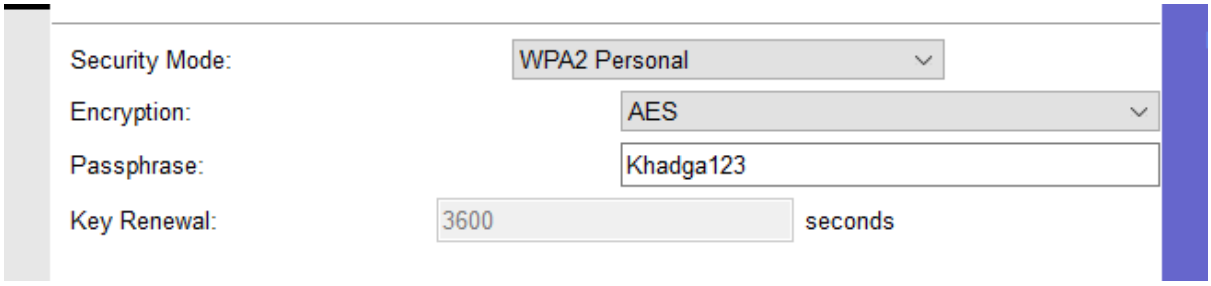

Physical
Config
GUI
Attributes
Setup
Setup
Wireless
Security
Access Restrictions
Applications & Gaming
Administra
Wireless-N Broadband
Basic Setup
DDNS
MAC Address Clone
Internet Setup
Internet Connection type
Automatic Configuration - DHCP
Optional Settings (required by some internet service providers)
Host Name:
Domain Name:
MTU:
Size:
1500
Network Setup
Router IP
IP Address:
192
168
10
1
Subnet Mask:
255.255.255.0
DHCP Server Settings
DHCP Server:
Enabled
Disabled
DHCP Reservation
Start IP Address: 192.168.10.
50
Maximum number of Users:
20
IP Address Range: 192.168.10. 50 - 69
Client Lease Time:
0
minutes (0 means one day)
Static DNS 1:
8
8
8
8
Static DNS 2:
Static DNS 3:
WINS:

3 Wireless Configuration(Wi-Fi)

These settings apply to all wireless devices (Laptops, PCs, Tablet, Smartphones).

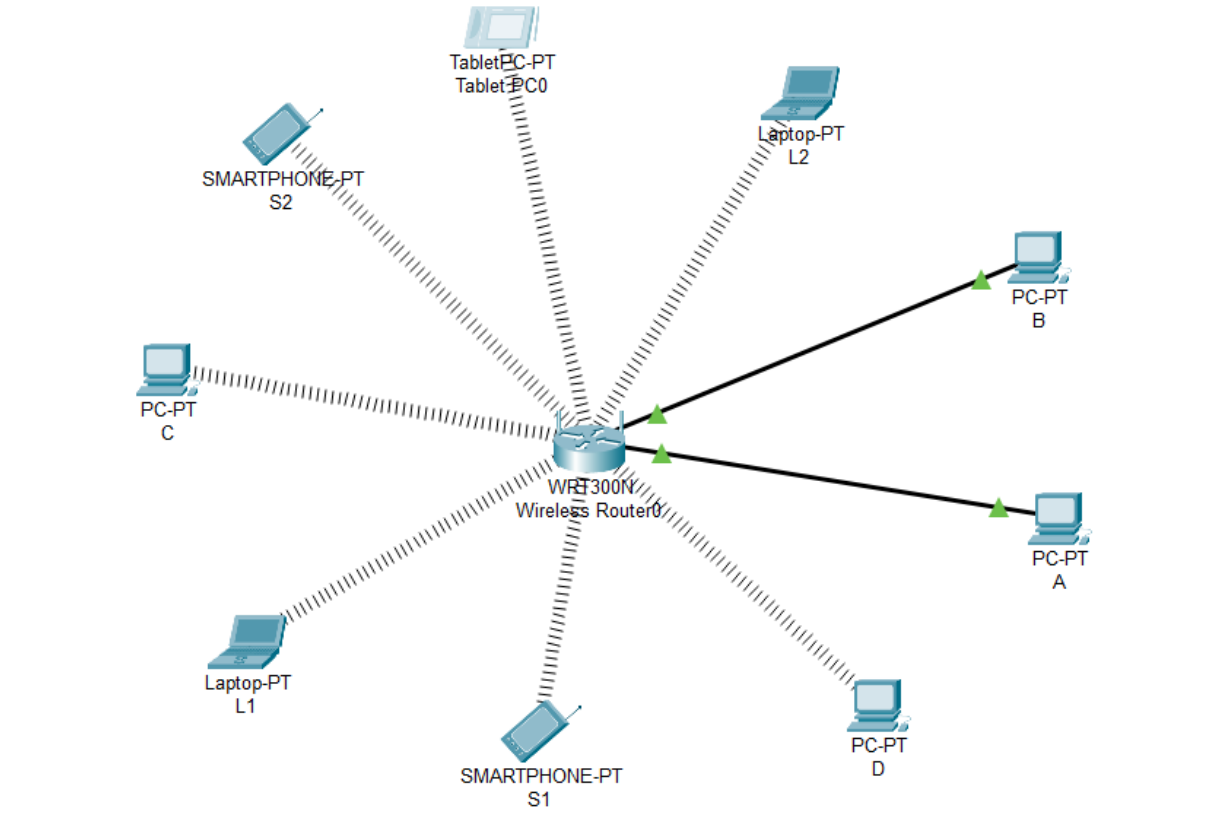
Setting	Value	Security Level
SSID (Network Name)	KhadgaOrg_WAN	Unique name for the wireless network.
Security Mode	WPA2 Personal	Industry standard encryption for secure communication.
Passphrase (Password)	Khadga123	The key required to connect to the Wi-Fi network. (NOTE: Must be changed in a real-world environment).





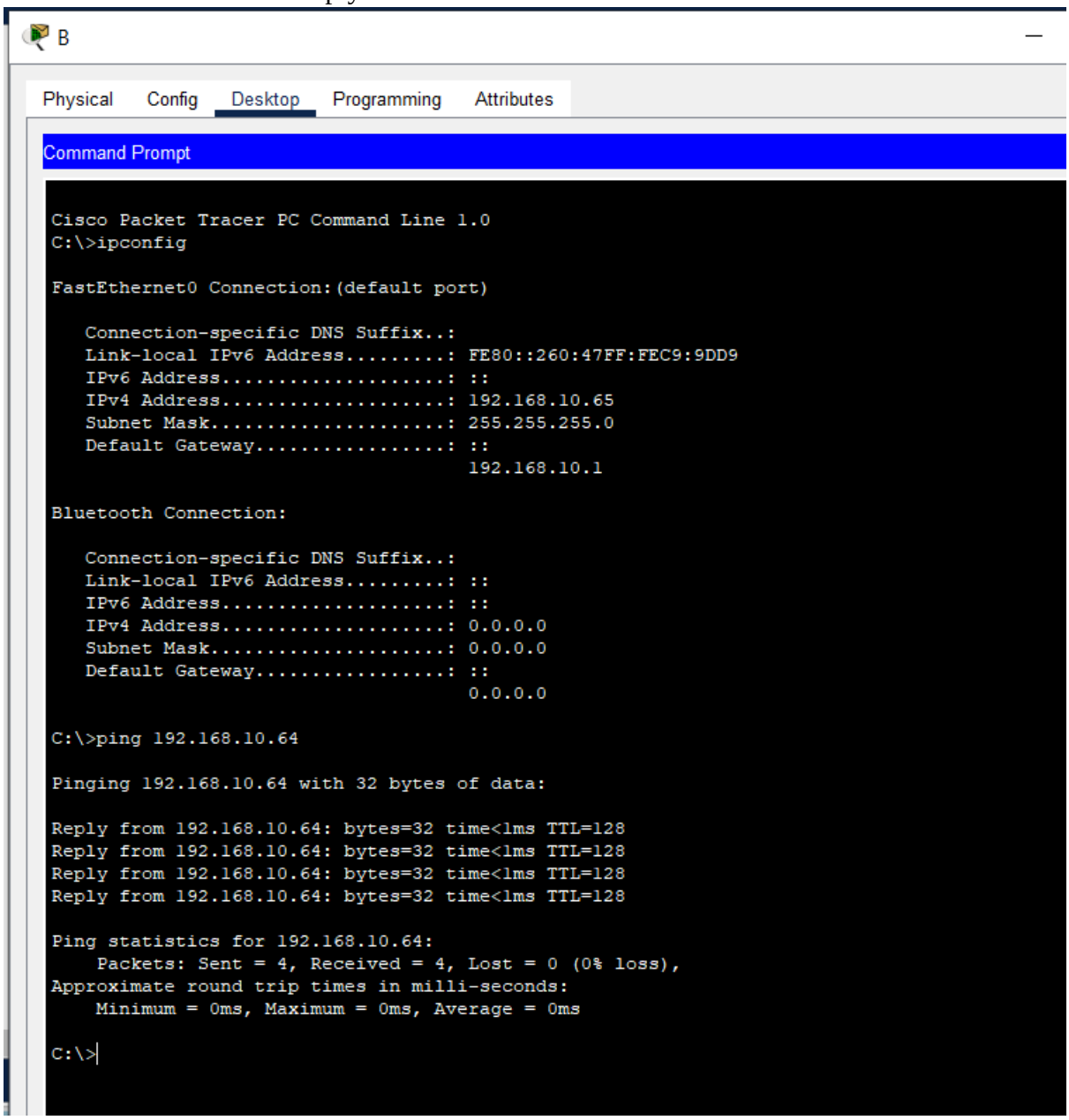
4 Device Configuration Summary

Device Type	Connection Type	Interface Card/Module	IP Configuration
PC-A,B	Wired (to Wireless Router)	FastEthernet0 (Built-in)	DHCP (Auto)
PC-C,D	Wireless	WPC300N (Module Added)	DHCP (Auto)
Laptop	Wireless	WPC300N (Module Added)	DHCP (Auto)
Smartphones/Tablet	Wireless	Wireless0 (Built-in)	DHCP (Auto)

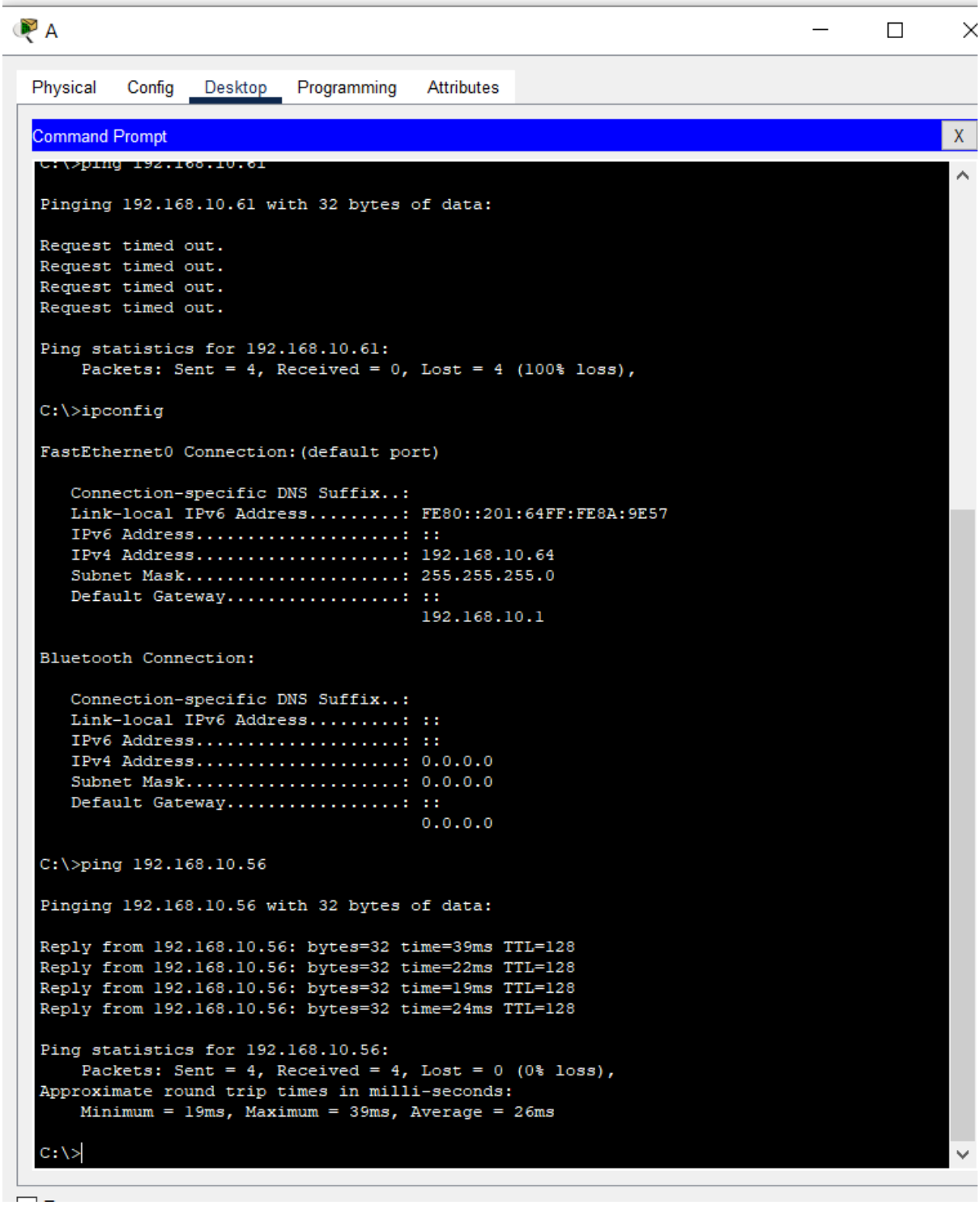


5 Verification and Testing

- Test 1: Wired to Wired
  Action: Ping from PC-A(192.168.10.64) to PC-B(192.168.10.65)
  Result: Successful reply



- Test 2: Wired to Wireless
  Action: Ping from PC-A(192.168.10.64) to the laptop-L1(192.168.10.56)
  Result: Successful reply



- Test 3: Wireless to Wireless
  Action: Ping from Smartphone-S2(192.168.10.58) to Tablet(192.168.10.52)
  Result: Successful Reply