



### Lab 4.5.3 Topology Design with Cisco Network Designer (CND)

Estimated Time: Sixty minutes

Number of Team Members: Students will work in teams of two or individually.

#### Objective

Design the following five different network topologies with the Cisco Network Design (CND) software:

- Ad hoc network
- Basic Service Set (BSS) Network
- Extended Service Set (ESS) Network
- Basic home network
- Enterprise network (optional)

#### Scenario

Network architecture is a roadmap and guide for ongoing network planning, design, and implementation. It provides a logical framework that unifies disparate solutions onto a single foundation.

Once an organization has developed network architecture, they will then have a framework in place for more informed decision-making. This will include appropriate investments in network technologies, products, and services.

#### Preparation

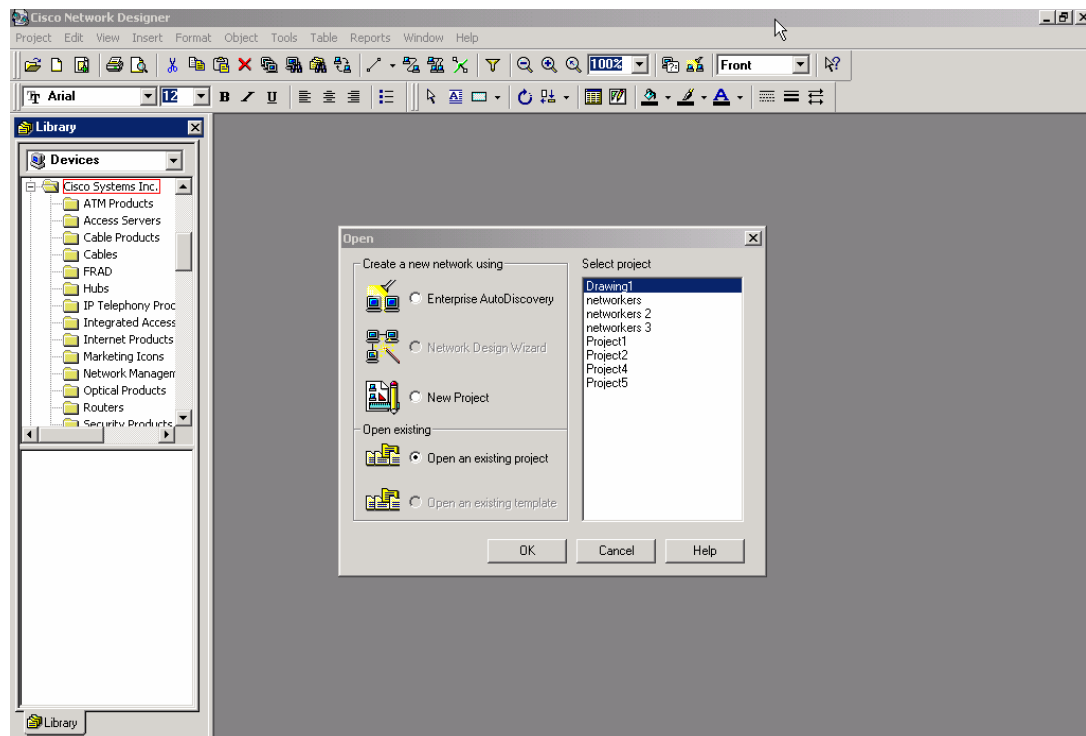
The instructor will provide each student team with a copy of the CND software.

(Optional: This lab can be performed with any other graphical application software or drawing materials the instructor has available.)

The student will review and understand FWL chapter 4 before doing the lab exercise.

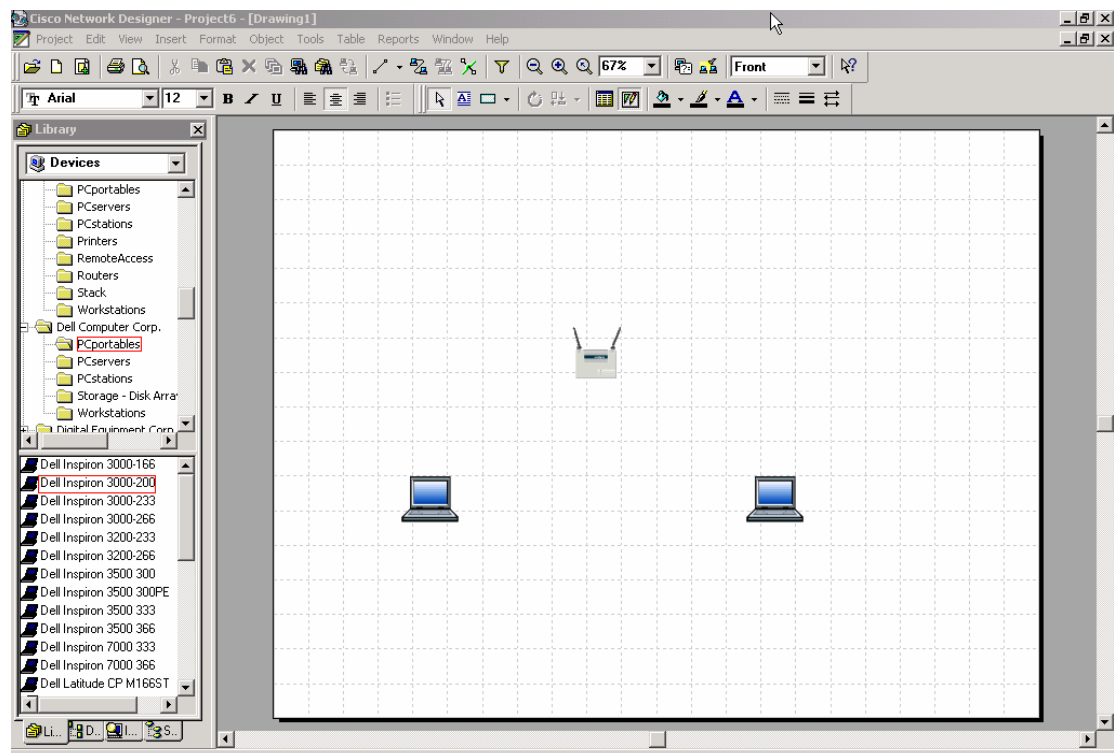
#### Tools and Resources

- CND Software or Cisco Network Designer Software
- Personal computers for each student or group which are compatible with the CND software.



## Step 1 Load the CND or designer software, if it has not been loaded on the PC

Open the Cisco Network Design software. Use the **help** feature to get acquainted with the configuration settings of the software.



## **Step 2 Design the Ad Hoc topology**

Sketch the Ad Hoc design below before creating the design using the software tool. Make sure to show the RF signal from the AP.

## **Step 3 Design the BSS topology**

Sketch the BSS design below before creating the design using the software tool. Make sure to include the following for the BSS topology: one DHCP server, network segments, one wireless AP (show the RF signal), Several wireless clients, two laptops and two desktops.

#### Step 4 Design the ESS topology

Sketch the ESS design below before creating the design using the software tool. Make sure to include one DHCP server and three wireless APs for the ESS topology. Make sure to indicate the channels of each AP and show the RF signal from the AP.

#### Step 5 Design a home network topology

Sketch the BSS design below before creating the design using the software tool. Make sure to include the following for the topology:

- One or more PCs
- The network segments
- One wireless AP (show the RF signal)
- Router
- Switch
- One or more laptop(s)
- One handheld (PDA)
- Connection to the Internet through modem (DSL, Cable, Dialup, Wireless ISP)

## **Step 6 Design an enterprise network topology**

Choose a type of enterprise network such as a school, hospital, transportation, manufacturing, etc. Based on the type of business, design a network. Sketch the design below before creating the design using the software tool. Make sure to include the following for the topology: numerous PCs and laptops, workgroups, servers, network segments, numerous wireless access point, router(s), switches, firewalls, IP phones, handheld devices applicable to the business, and so on.

## **Step 7 Create a PowerPoint show or posters**

Assemble all topologies within a PowerPoint show or display posters. Each group or individual can present their topologies to class or create a wall display.