PR2 Basestation and Robot Setup

1. Use recovery DVD to reinstall basestation (should have just finished)

2. Plug the basestation service port (on the PCI card) into the robot service port.

3. Decide on a name for your basestation, robot, c1, and c2. In the remainder of the tutorial, replace as follows:
   - <BASE_NAME> → your new basestation name
   - <ROBOT_NAME> → your new robot name
   - <C1_NAME> → your new c1 name
   - <C2_NAME> → your new c2 name

4. Your sysadmin will need to know about 3 network interfaces (basestation wan0, robot wan0, and wireless client wl0 or wl1).
   a) Use `ifconfig` to Find the macaddress (Hwaddr) for the following 2 interfaces:
      - basestation: wan0   (Will eventually get 3 static IP addresses)
      - c1: wan0   (Will eventually get 1 DHCP address)
   b) Use the web interface (Go to: http://10.68.0.5) to find the Hwaddr of the wireless client:
      - **NOTE:** We will connect using wl1, but depending on the wireless in your lab you may be using wl0 instead. They have different Hwaddresses.
   c) Email Jeremy, your "sysadmin" (leibs@willowgarage.com) and request:
      - 3 IP addresses for the basestation interface. Let your sysadmin know all 3 of these IP addresses will have the same Hwaddr – the one for basestation: wan0.
         - We will refer to these as <BASE_IP>, <C1_IP>, and <C2_IP>.
      - A DNS entry for <BASE_NAME> pointing to the first IP
      - A DNS entry for <C1_NAME> pointing to the second IP
      - A DNS entry for <C2_NAME> pointing to the third IP
      - DHCP access on the wired network using the c1 wan0 Hwaddr
      - Wireless and DHCP access on the wireless network using the wireless client Hwaddr.

5. Edit: /etc/hosts to contain:

   ```
   127.0.0.1         localhost
   127.0.1.1         BASE_NAME.pr2workshop.com BASE_NAME
   10.68.255.1       BASE_NAME.pr2workshop.com BASE_NAME
   ...
   ```

   - Note: in your lab pr2workshop.com should instead be yourschool.edu, etc.

6. Edit: /etc/hostname to contain:
   ```
   BASE_NAME
   ```

7. Set up your networking:
   a) Edit /etc/network/interfaces. Replace XXX with the IP address provided to you for BASE_NAME.

   ```
   # The primary network interface
   auto wan0
   iface wan0 inet static
       address <BASE_IP>
       netmask 255.255.255.0
       gateway 192.168.1.1
       post-up robot-forward start
       post-down robot-forward stop
   ...
   ```

   b) Edit /etc/resolve.conf:

   ```
   domain pr2workshop.com
   search pr2workshop.com
   nameserver 192.168.1.1
   ```

   NOTE: On your network you will use your own appropriate DNS server.

8. Reboot the basestation.

9. Set up the vpn server
   ```
   pr2admin@basestation$ sudo /etc/openvpn/gen_server_key
   ```

10. Set up the robot wireless.
    a) Change the wireless client to: "pr2workshop_1_new"
    b) Change the WPA key to "willow68"
    c) In the upper right hand corner, you should see it get a "WAN IP" on the 192.168.1.0 subnet

11. Brand your robot:
    ```
    sudo robot-brand <ROBOT_NAME> <C1_NAME> <C2_NAME> 10.68.1.0
    ```

12. Set up IP forwarding. Edit /etc/robot-forward.conf:

    ```
    <C1_NAME> 10.68.1.1 <C1_IP>
    <C2_NAME> 10.68.1.2 <C2_IP>
    ```

13. Turn on IP forwarding:
    ```
    pr2admin@basestation$ sudo robot-forward start
    ```

14. Verify your robot works.