Networking for CNC10 Systems Running cnclinux 11.2

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Prelude:

This guide is intended to help configure a control running cnclinux 11.2 and CNC10 for networking. It does not show how to configure the PC. Please follow the guide in the order it is presented. Plugging in a USB mouse for the duration of the guide will make this process much easier. If you only want to share files one way, you can skip the steps for Section 3 or Section 4. You must configure the network device and firewall to allow any file sharing to work.
Section 1: Configuring the network device

This guide will walk you through configuring network devices using Yast. It will be easier if there is a mouse connected to the system.

Yast is available through the task bar: Programs and Settings->Settings->Yast

If the task bar is not visible, open a terminal window by pressing Alt-F6. This should make the task bar visible and you should be able to navigate it using a mouse.
Start Yast and find the Network Settings module. Click on Network Settings to start the module.
Now choose the network card that you are going to connect to your network and choose edit.
Click on the first tab and ensure that the Firewall Zone is set to External Zone.
Click on the second tab and ensure that the checkbox for Dynamic Address is chosen. This is the DHCP option. If you want to use a static ip address you can do that here also.

You shouldn't need to change anything on the third tab (Hardware)
Click Next and the settings should take effect. You will be taken to this window where you can review the changes. Press Ok when you are finished.
Section 2 Configuring the firewall under cnclinux:

This section will guide you through ensuring that the firewall is properly configured to allow file sharing on the control.

First Start Yast again.
Next, find and start the firewall module by clicking on it.
Now on the left side of the window, click Start-Up. Check Enable Firewall Automatic Starting. If the firewall isn’t running click on Start Firewall Now.
Next choose the Allow Services Section. Set the drop down box for “Allowed Services for Selected Zone” to “External Zone”. You are going to make sure that Samba Server, Samba Client, and Netbios Server are allowed in the External Zone (which is the zone assigned to your network device).

The following services should be allowed:
Netbios Server
Samba Client
Samba Server

The Netbios Server allows linux to translate a NetBIOS name into an ip address.
The Samba Client allows the control to read network shares.
The Samba Server allows the control to share folders on the network.

If any of the services are not in the list, use the “Service To Allow” drop down box to choose the service. Then click Add to add it to the list.
The rest of the Firewall settings shouldn't need changed. The images below are for your reference.
When You are done with the settings, click “Next”. Verify your settings and press Finish.
Section 3
Sharing Files from the control to a PC

File sharing will not work if the network device is not configured or if the firewall is blocking it. Please follow the steps in Section 1 and Section 2 prior to configuring file sharing.

This guide will walk you through sharing files on the control with a PC. In order to do this you are going to configure something called a Samba server to run on the control.

First, start Yast again.
Now find the Samba Server module and click on it.
Click on the first tab “Start-Up”. Choose Service Start During Boot and Open Port in Firewall.

This will make the Samba server start automatically when the control is powered up. The second setting allows the samba server through the firewall.
Click on the second tab. It should already look like this. By default the control has entries for ncfiles and intercon directories. Below are descriptions of each column.

- **Status:** should be set to enabled if you want to share the entry.
- **Read-Only:** controls the sharing permissions for the share. If set to yes, remote users can see and read files but cannot change or add files to the shared folder.
- **Name:** The name of the shared folder. This is the name that the remote user (PC) will see.
- **Path:** The full path to the folder that will be shared
- **Comment:** a comment which is visible to the remote user.

You can leave this page as it is if it looks like what is below. If for any reason you want to change the shared entries you can do so using the Add, Edit, and Delete buttons below.
The third tab should look like this. You shouldn't have to change anything on this tab except, the **NetBIOS Hostname**.

The **NetBIOS Hostname** is the name you want your control to have on the Windows network.

By default it is set to centroid001. You can leave it alone if this will be the only control on the network. If there are multiple controls, then each one needs to be given a unique NetBIOS Hostname. Remember what this name is because you will need to know it later.
You shouldn't need to change anything on the fourth or fifth tabs. They are shown below for your reference.

Now you are done with the Samba Configuration. Click Ok and the settings will take effect.
Now that Samba is configured, you need to set a password for your shares. This can be done using the command `smbpasswd`. Press Alt-F6 to open a terminal window. Enter the command:

```
smbpasswd -a
```

Type in the password you want to use for the network shares. Be sure to remember this information. It is used to connect to the shared folders from your PC. Your user name is root.

Now your control is setup to share files with your PC. In Windows, you can add the shares as network locations or you can map them as a network drive.

When connected to the shared folders on the control:

Your user name is **root**
Your password is the password you entered above using `smbpasswd -a`
4: Sharing Files from a PC to the control

This section will guide you through configuring the control to access a network share on your network. If you don't already have a folder shared on your network, you can add one before continuing.

To configure the control, edit or create a file called cnc.net which can be found in “/cncroot/c”. Bring up a terminal window by pressing Alt-F6, then type:

```
edit /cncroot/c/cnc.net
```

Note: On previous linux systems this file was called cnc10.net and lived in /cncroot/c/cnc10 or /cncroot/c/cnc10t

The file format is still the same as the previous systems:

```
//computer-name/share-name g “username=mynname,password=mypassword”
```

**computer-name**

The name of the computer that has the shared folder

**share-name**

The name of the shared folder

**g**

The drive letter that you want the control to use for the shared folder. In this example, the shared folder will be automatically mounted at /cncroot/g. It will also show up in CNC10’s Advanced file menu as drive g.

**username**

The user name that you use to login to the PC that has the shared folder.

**password**
The password that you use to login to the PC that has the shared folder.

Note: the quotes, comma, and equal signs are important. Type them the same as in the example.

Save the file. Then reboot the control. The network share should be available from the advanced file load menu. The simplified load menu “From Lan” button navigates to the drive letter set in the Control Configuration Screen. Set this to the drive letter that you mapped to your network share.