

Installing the Omniturn Network Interface (G4 control)

Overview

The network interface acts as a bridge between the Omniturn's RS232 port and the network (via WiFi or Ethernet). As configured when we ship it, the interface is set up with a shared folder that is accessible to computers on the network and a serial connection to the Omniturn. Computers on the network can map it as a network drive or set up a shortcut to it as a shared folder, and treat it as if it was a folder on the computer's own hard drive. The Omniturn can only download files from it or upload files to it. Files can be deleted from it from the network side only.

Preparation

The interface is shipped with its hostname (the name it's called on your network) set as **omni000**. The user login name is **pi** and the password is **omni**. There can be only one device on a local network with any given hostname, so if there's already an omni000 you'll need to shut it down until you've installed this one and changed its name. The procedure for changing the hostname and password is covered in the **Setting up the WiFi Connection** section at the end of this document, and it's done after the interface is powered up. It can be done from the Omniturn, as described in this document, or over the network via a SSH connection if you can connect via ethernet.

If you plan on changing the password the Omniturn uses to log in to the interface, you can edit the NETXFR.CFG file, which is in the XFRINST folder on the installation USB stick. You can edit the file with Notepad or any text editor. The password is the first word of the fifth line in the file. It's a little more convenient to do it before the interface is installed, since editing it on the installation stick will make sure that the password in the CNC matches the one on the stick. Note that changing the password in this file doesn't change the password that the interface wants to see. If you change the password in the config file, you'll have to change the one in the interface too, as described in the **Setting up the WiFi Connection** section. If you don't change the password, there's no need to edit the NETXFR.CFG file and you can move the interface from one machine to another without having to change the password every time you move it. Also, if you'll be setting up a WiFi connection, note your network's SSID and the network password, making sure to match capitalization,.

Installation:

For an ethernet connection, plug the ethernet cable into the interface's RJ45 port.

Plug the USB-RS232 adapter cable into the interface and the RS232 port on the control.

Plug the interface's power supply into the micro USB connector on the interface and an AC power outlet.

Boot the Omniturn with the USB stick for the network interface installed.

At the file backup prompt, press Ctrl-C instead of Y or N, and you should see the DOS prompt (K:\CNC)

At the DOS prompt, type:

d: and Enter. The prompt should now be: D:\. Type:

g4inst and Enter. The installer batch file will create the directories and install the files needed.

Reboot the Omniturn when the installation is completed.

If you want to change the interface's name on the network, or if you will be setting up a WiFi connection, see the **Setting up the WiFi Connection** section at the end of this document.

Using the Interface

Operation from the CNC side:

The interface needs a minute or so to boot. This isn't an issue if the interface is left powered up all the time, but if you only power up the interface when you need it you'll have to wait for it.

Pressing Alt-R in the file selection screen will bring up the interface screen. After the file transfer is complete, exiting the interface program will bring you back to the file selection screen.

When the interface program starts up it displays a menu with 3 options:

Would you like to:

1. Receive a program from the server
2. Send a program to the server
3. Exit file transfer program

When you select number 1 you will be shown a listing of files on the network interface device and prompted for the name of the one you want to transfer. Typing the name and pressing Enter will transfer the file, (first giving you the choice to overwrite if the file already exists on the Omniturn) which will be displayed as it's transferred. Pressing Esc without choosing a file will return you to the menu.

When you select number 2 you will be prompted for the name of the file you want to send. When you enter it, it will be sent. If you press Esc before entering the file name you will be returned to the menu.

Operation from the network computer side:

You can designate the network interface as a network drive or as a shared folder, or you can just copy files from the command prompt if that's what you prefer. We prefer to set up a shortcut to each interface (for example, the target would be \\omniturn2\share for the interface of that hostname). You can then just handle files on the interface as if they are local to your computer. From a Linux computer, depending on the software on your system you may need to add .local to the hostname (e.g. omni000.local). If your computer can't find it when looking for the hostname, try it with .local added.

General considerations:

One of the main advantages of network connection is that it allows you to make sure that only the current version of any file is available to the machines. For this reason, the number of files that are available on each machine's network interface should be kept to a minimum, so that they can easily be kept up to date. Files that aren't going to be needed in the near future shouldn't be on the interface. You can push files to the machine's interface from your desktop, but the Omniturns can't pull them from your desktop. Each machine only has access to files that are in the /share folder on its own interface. The file transfer folder on the network interface is called /share and it's set up to be public. Your IT department can adjust the permissions as desired, using the kermit terminal interface from the Omniturn side or PuTTY or some other SSH terminal program from the network side. It's a Linux computer, running a variant of the Raspberry Pi(Debian) OS.

Setting up the WiFi Connection

With the interface connected to the control's RS232 port and powered up, boot the control and drop to DOS by pressing Ctrl-C at the file backup prompt. You should see the K:\CNC prompt. At that prompt, type:

c: and Enter. Now you should see the C:\RUNFILES> prompt. Type

cd\kermit and Enter. Now the prompt should be C:\KERMIT>. Type

kermit and Enter, and the Kermit program will give you a greeting and a prompt that says:

[C:\KERMIT] MS-KERMIT> Type:

connect and Enter, and the screen will either give you a linux prompt or go blank. If it goes blank, just tap the Enter key and it should give you the login prompt, which will be **omni000 login:** type

pi and Enter. Now you'll be prompted **Password:** type

omni and Enter.

You should then see some info about the Linux version, followed by the **pi@omni000:~\$** prompt.

At this point, type:

sudo raspi-config and Enter. The configuration program will start, displaying a menu of potential parameters to set. By default we set the interface for a host name of omni000, and the password to omni. Arrowing down to a menu item and pressing Enter will let you change any of the items. "System Options" is the first item on the menu, and the settings we need are all under the system options menu. Press Enter to get into the System Options menu.

"Wireless Lan" is the first item on the System Options menu. Press Enter to select it and you will be prompted to enter your network's SSID, which is case-sensitive, and your router password, which is also case-sensitive. Once you've typed each of these and pressed Enter, you'll be returned to the main Raspi-Config menu.

You can change the user password if you want to. It's currently **omni**. This is not the WiFi password, it's the login password the Omniturn control uses to log on to the network interface. If you change it here, you'll also need to change it in the netxfr.cfg file on the Omniturn. It's probably a good idea to change it in the netxfr.cfg file on the installation USB stick as well, so you can look it up there when you forget what you changed it to. You can edit it on the USB with Notepad or any plain text editor. To change it on the interface, go back into the System Options menu and arrow down to highlight "Password" and press Enter. You will be prompted to enter your new password twice, and returned once again to the main config menu.

If you plan on having more than one Omniturn network interface, you need to change the host name since there can only be one device on a network with any given host name. On the System Options menu, arrow down to highlight Hostname. Press Enter and you will get a screen that explains the rules for creating a hostname, then Enter again to get to the data entry screen, which will be displaying the current hostname. Backspace the current name out and enter your new one, then press Enter. Once these are set and you are back at the main raspi-config menu, press the Right arrow key twice to highlight "Finish" and press Enter. You will be asked if you want to reboot. Press Enter to do so, and the screen will freeze for a while as the interface reboots, then should display the login prompt, which should consist of your new hostname plus "login:" the login name is still pi, so type that and Enter. You will be prompted for the password, which will be whatever you set it to, or still omni if you didn't change it. Finally, it will give the standard command prompt:

pi@hostname:~\$ where "hostname" is replaced with the hostname you set. At this point, press Alt-X to disconnect the Omniturn from the interface, then type **exit** and Enter to get back to the C:\KERMIT> prompt. Power the control off and back on or press Ctrl-Alt-Del to reboot the control. You should be ready to go.