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To: Mark 5 Development Group

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Subject: Network Configuration for a Mark 5

This memo describes how to configure a Mark 5B(+) or a Mark 5C for use on the Local Area Network (LAN) at a new location. This memo does not cover the configuration of a high-speed network for data transfer. However, the public network used for controlling the Mark 5 can be used for data transfer at whatever data rate is supported by the public network.

Whenever a Mark 5 system is moved from one LAN to another, some network control files may need to be changed to accommodate the new LAN. No changes are needed only if the following conditions are satisfied:

- 1) The Mark 5 is configured for DHCP.
- 2) The new LAN supports DHCP.
- 3) The NTP daemon (`ntpd`) is using `pool.ntp.org` servers.
- 4) The new LAN allows `ntpd` to use `pool.ntp.org` servers.

If conditions 1) and 2) are not met, then the `/etc/network/interfaces` and `/etc/resolv.conf` files need to be edited to configure DHCP or a static IP address.

If conditions 3) and 4) are not met, then the `/etc/ntp.conf` file needs to be edited to include local and/or remote NTP servers that are available on the LAN.

The following network information is needed when configuring a Mark 5 to use a static IP address:

- 1) One, preferably 2, IP Addresses for each Mark 5.
- 2) The Subnet Mask
- 3) The IP address of the Gateway
- 4) The IP address of one or more Domain Name Servers

The second IP Address can be used to monitor and control the chassis power at an unattended remote site over the network. See Mark 5 Memo #082.

If `pool.ntp.org` servers are not useable on the new LAN, then the IP addresses of at least one, preferably 4, NTP servers that are useable by `ntpd` are needed. Note that a server that is useable by `ntpdate` may not be useable `ntpd`. For example, `ntpdate -q pool.ntp.org` works from the Haystack LAN, but `pool.ntp.org` will not work at Haystack as a server for `ntpd`.

The IP Address, Subnet Mask and Gateway Address go in the `/etc/network/interfaces` file.

The IP Address(es) of the DNS Server(s) go in the `/etc/resolv.conf` file.

The IP addresses, or the host names, of the NTP servers go in the `/etc/ntp.conf` file.

Here is a detailed procedure to (re)configure the network on a Debian system.

1) As root, edit the `/etc/network/interfaces` file.

For DHCP, the `iface` line should read

```
iface eth0 inet dhcp [eth0 may be eth1, or eth2, etc.]
```

And all subsequent lines should be commented out.

For example:

```
# The primary network interface
auto eth0
iface eth0 inet dhcp
#iface eth0 inet static # haystack-br2.vlba.nrao.edu
#       address 146.88.64.24
#       netmask 255.255.255.0
#       #       gateway 146.88.64.1
```

For a static IP address, comment out the `dhcp` line, delete the '#' from the following lines, and change the addresses as required.

2) Edit `/etc/resolv.conf` with the IP Addresses of DNS Servers for the new LAN.

3) Edit `/etc/ntp.conf` to include NTP servers useable at the new location. In some cases, there may already be an appropriate `ntp.conf` file, such as `/etc/ntp.conf.uspool`, that can be copied to `ntp.conf`.

Here is a list of the files that need to be checked before moving a Mark 5 to a different LAN.

___ Check the `/etc/network/interfaces` file.

___ Check the `/etc/resolv.conf` file.

___ Check the `/etc/ntp.conf` file.

___ Check the `/etc/hostname` file (only for static IP).