

# DES-3326 Layer 3 Switch Example Layer 3 Configuration Guide.

Model: DES-3326

Firmware Version 1.00B19

OS Supported: Windows 95, Windows 98, Windows 98SE, Windows Me, Windows NT 4.0 and Windows 2000.

## Introduction

This guide will help you to setup a routing function to operate between two TCPIP networks. Its important to have the latest firmware installed in the switch before embarking on the configuration. At the time of writing this document the firmware release was 1.00B19. Please visit the UK ftp site for the latest firmware releases.

<ftp://ftp.dlink.co.uk>

## Network Configuration

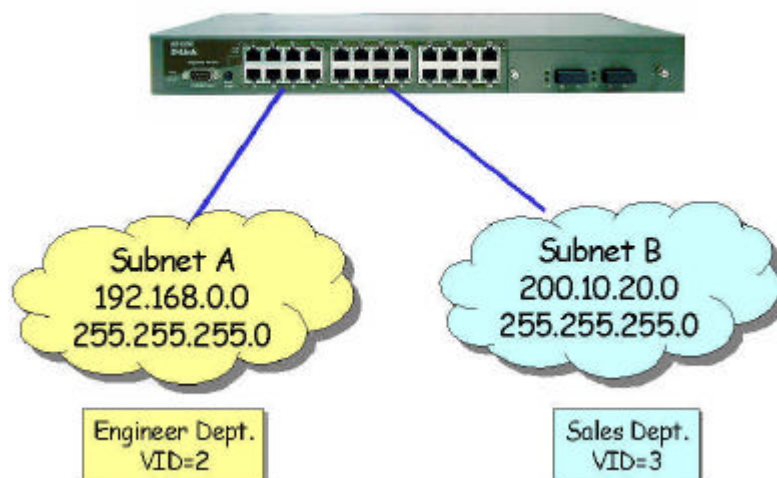


Fig 1. Network Configuration.

An illustration of a typical layer 3 application is shown in fig 1. above. Two departments are segmented using layer 3 routing protocol rather than segmented at the MAC layer. The engineering department is on ports 1 & 2. The sales department is on ports 17 to 24.

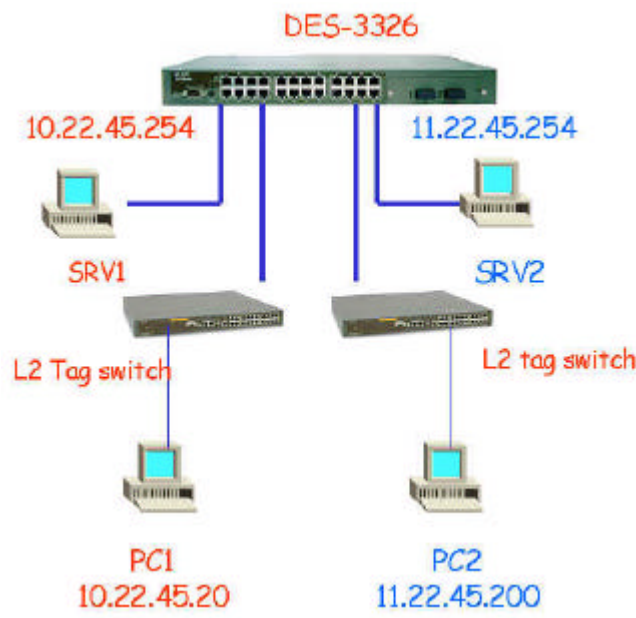


Fig 2. Mix of Layer 2 & Layer 3

The example configuration can be further extended to include both layer 2 & 3 switches as shown in fig 2. The configuration is complete if PC1 can ping PC2. The DES-3326 thus has achieved the act of routing between the 2 subnets. For the purpose of this document, fig 1. above will be the reference configuration. Fig 2. is an illustration of what can be configured if layer 2 switches also exist in your network.

## Configuration Procedure

Before you begin the layer 3 configuration, you will need to change the operating mode of the switch from layer 2 to layer 3. The default setting for the switch is layer 2. To do this, attach to the switch through its RS232 console port with HyperTerminal and login onto the switch. The default username and password is **no username and no password**, simply press

return - return. You will be presented with the main menu options as shown in fig 3.

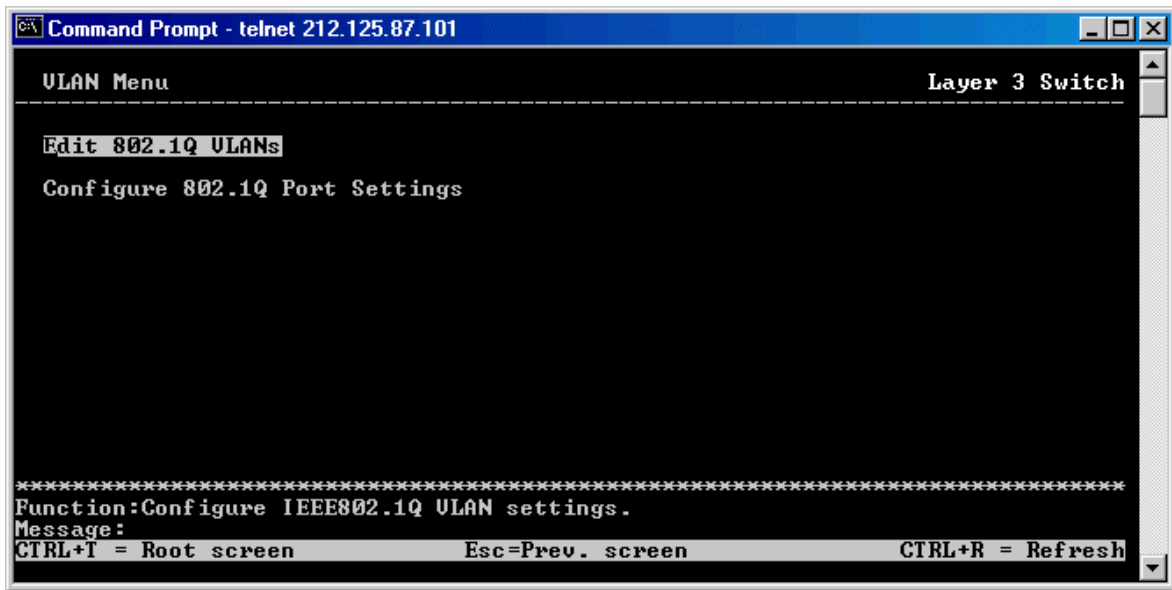


Fig 3. Switch Main Menu

Select from the main menu 'Switch Settings'

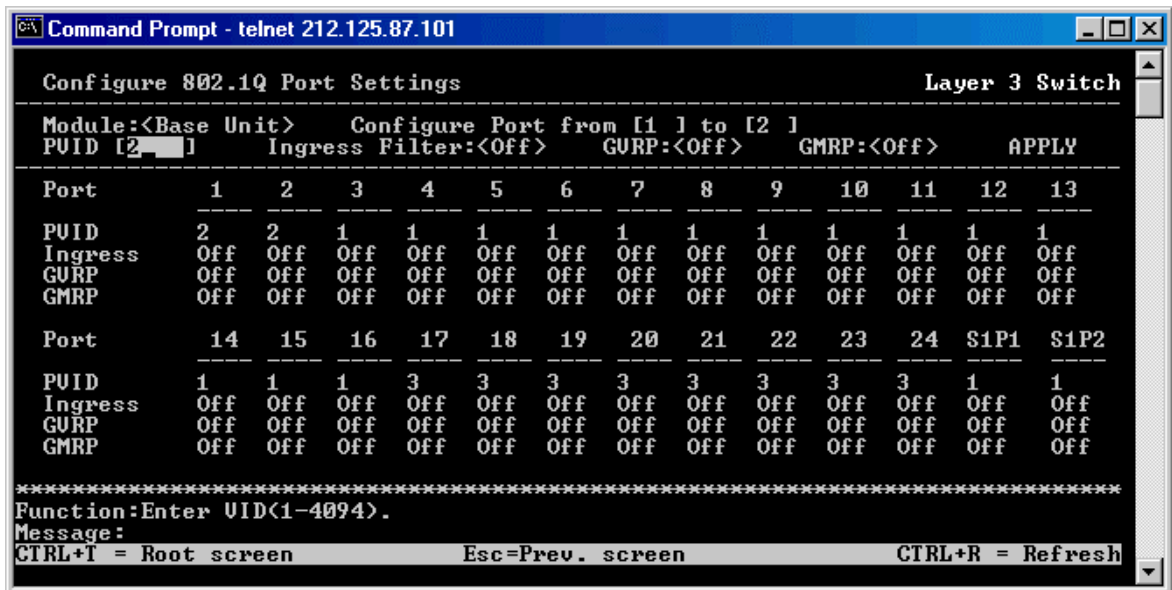


Fig 4. Switch Settings Menu

From the switch settings menu select 'Switch Operating Mode'

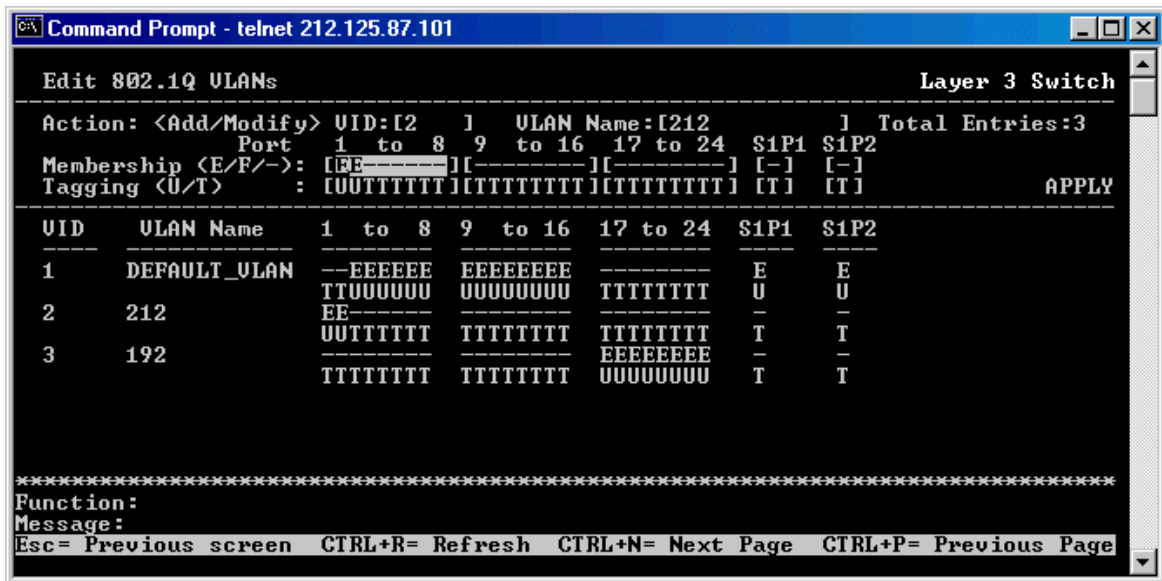


Fig 5. Switch Operating Mode

Using the space bar change the operating mode from layer 2 to 'IP Routing, support IEEE 802.1Q VLANs' as in fig 5. Apply the changes, the switch will reboot. Reattach to the switch through HyperTerminal. Please note, you do not need to change any of the configuration parameters in the 'Remote management setup' leave them at there default settings, fig 6.

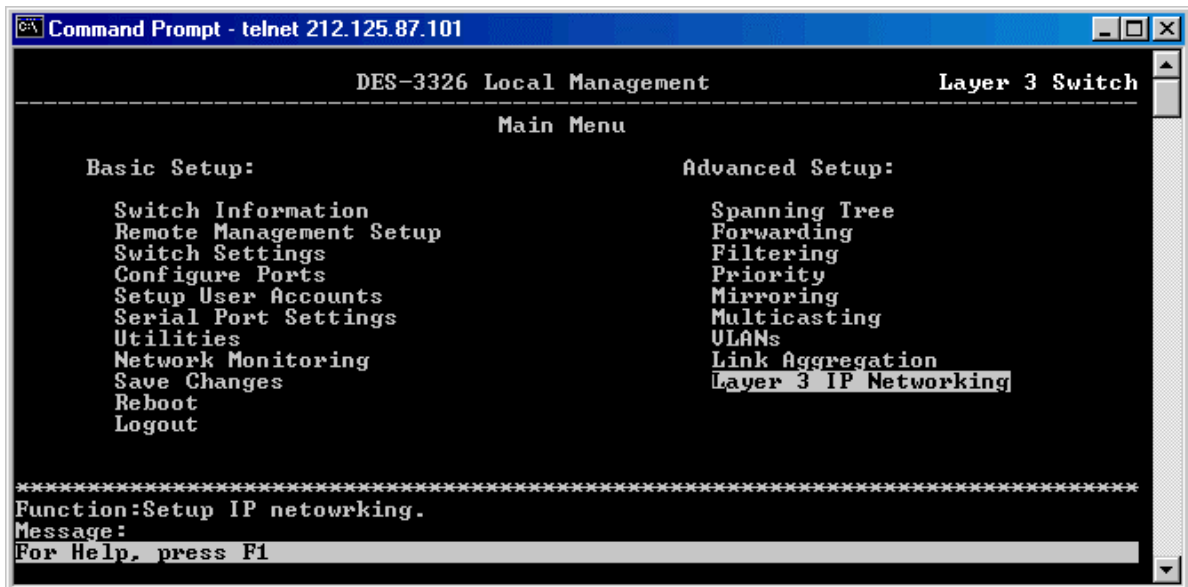


Fig 6. Remote Management Settings

After you have completed the above. Proceed to the next stage of the configuration, that is to configure the VLAN's.

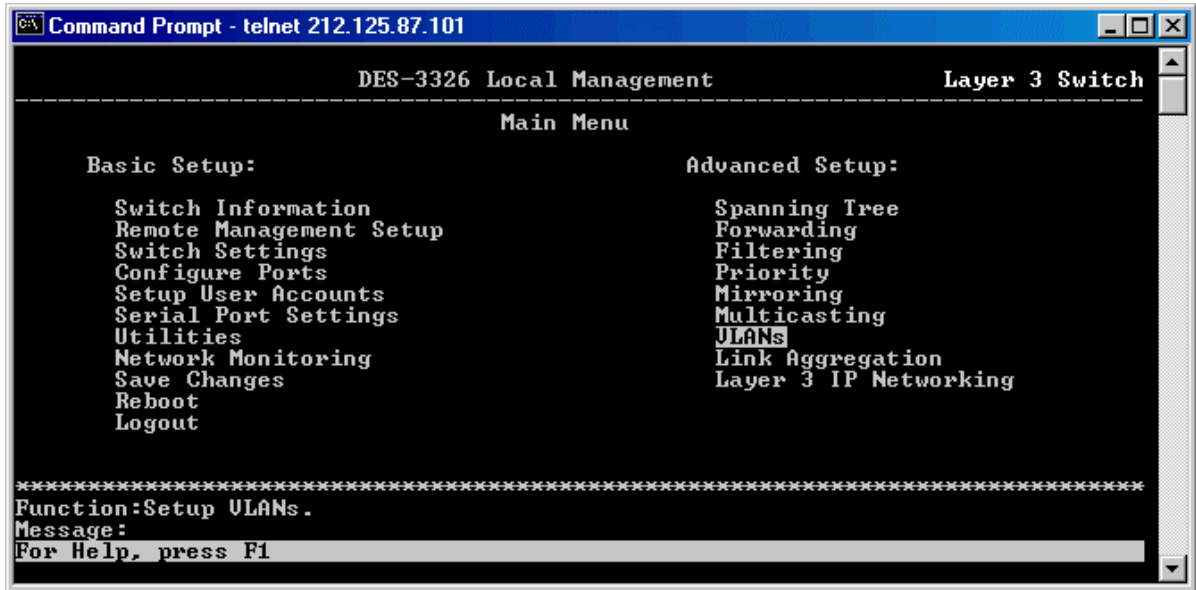


Fig 7. Main Menu

From the main menu select 'VLAN's'

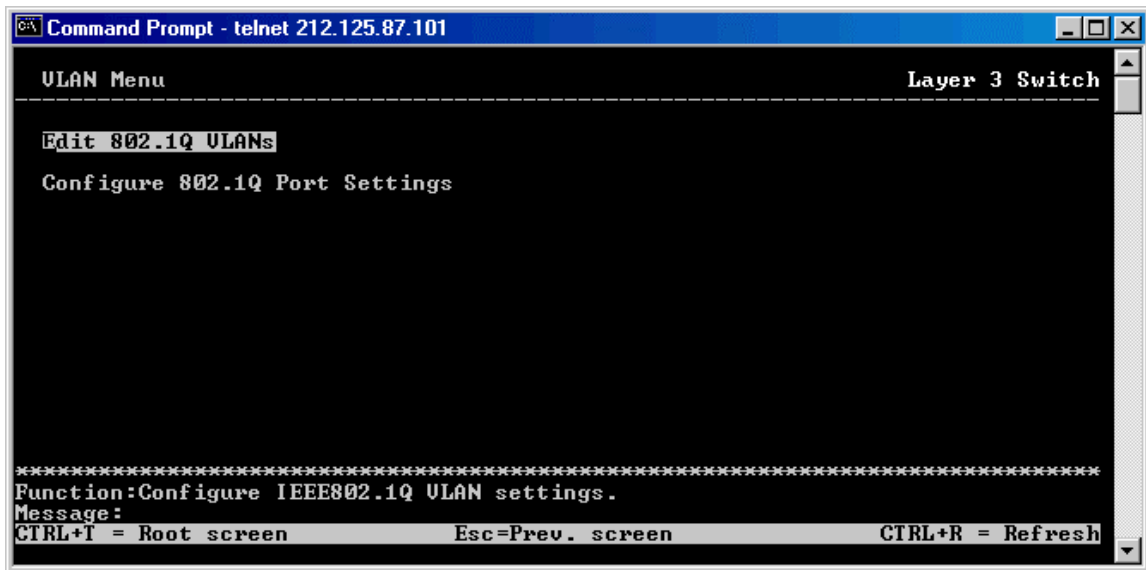


Fig 8. VLAN Menu

Select 'Configure 802.1Q Port Settings'. You will need to configure the port VLAN ID (PVID) before configuring the 802.1Q VLAN's. The default PVID for all ports is set to 1. For setting up VLAN's for the engineering department use PVID=2, for sales use PVID=3 as shown in Fig. 9.

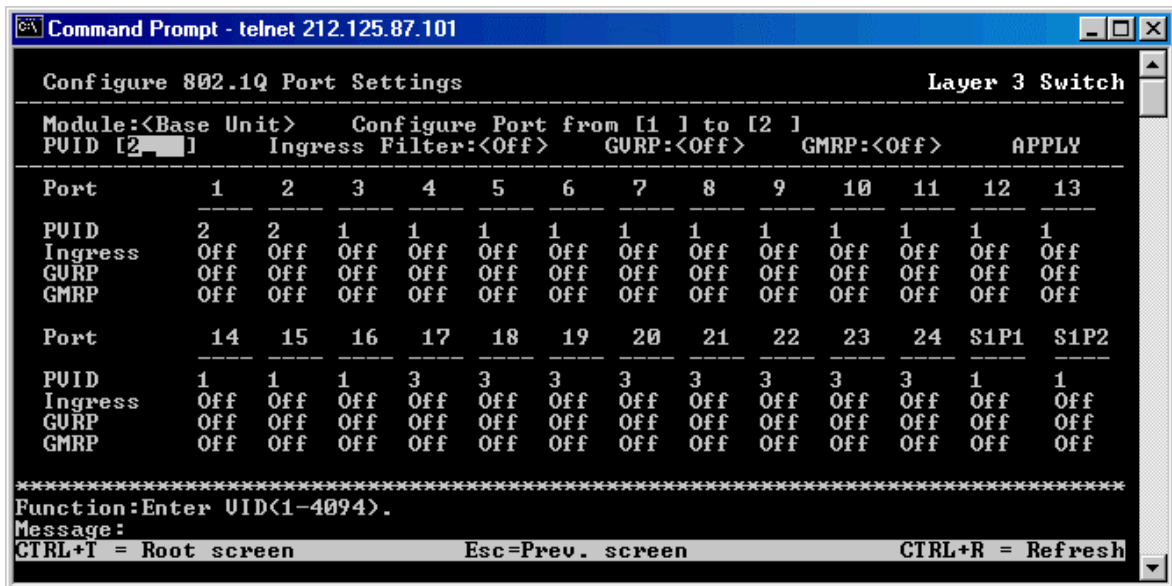


Fig 9. 802.1Q Port Settings

After the above is completed your ready to configure the 802.1Q VLAN's. Go to the previous menu and select 'Edit 802.1.Q VLAN's'.

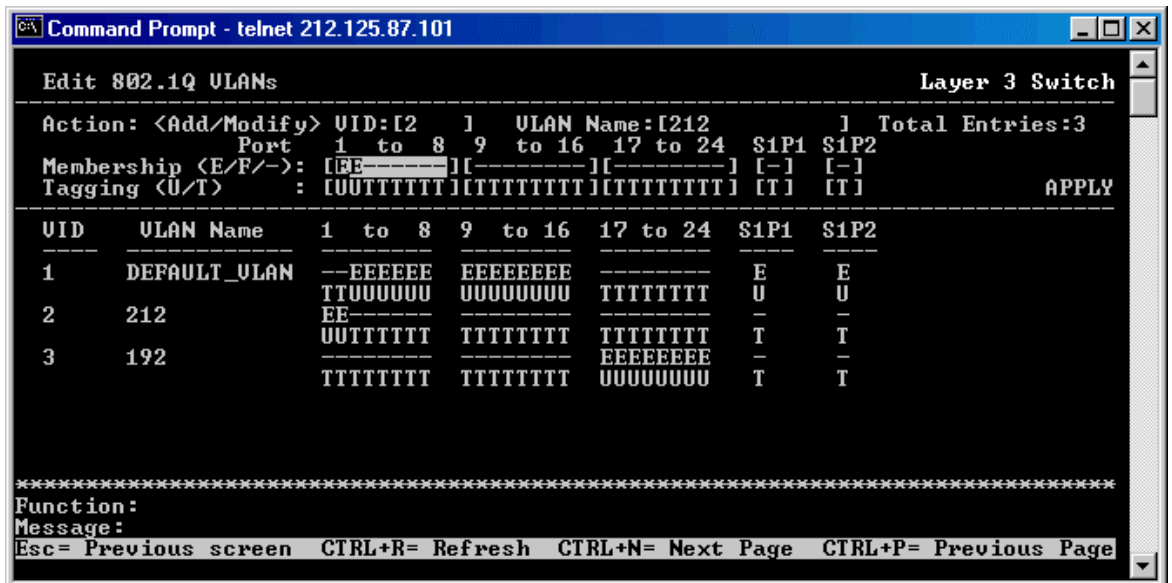


Fig 10. 802.1Q VLAN's

For the VID use the same number as used for the PVID previously. You will need to leave the default VLAN as is, ie do not change the default VID. Use the TAB key to cursor to the VID and enter '2', again use the TAB key to cursor to VLAN name and enter an appropriate name. In this example we have the first octet of the IP adress. Under the membership, 'Egress' the port

by selecting E. You will need to Egress all the port members of this VLAN. In this example only ports 1 & 2 are members. In the Tagging section, select 'U' for Untag. This is so because adapters connected to these ports may not be Tag compliant. Repeat the procedure for the second subnet. You are now ready to configure your layer 3 routing configuration within the switch. From the main menu select layer 3 IP Networking, then select 'Setup IP Interface'

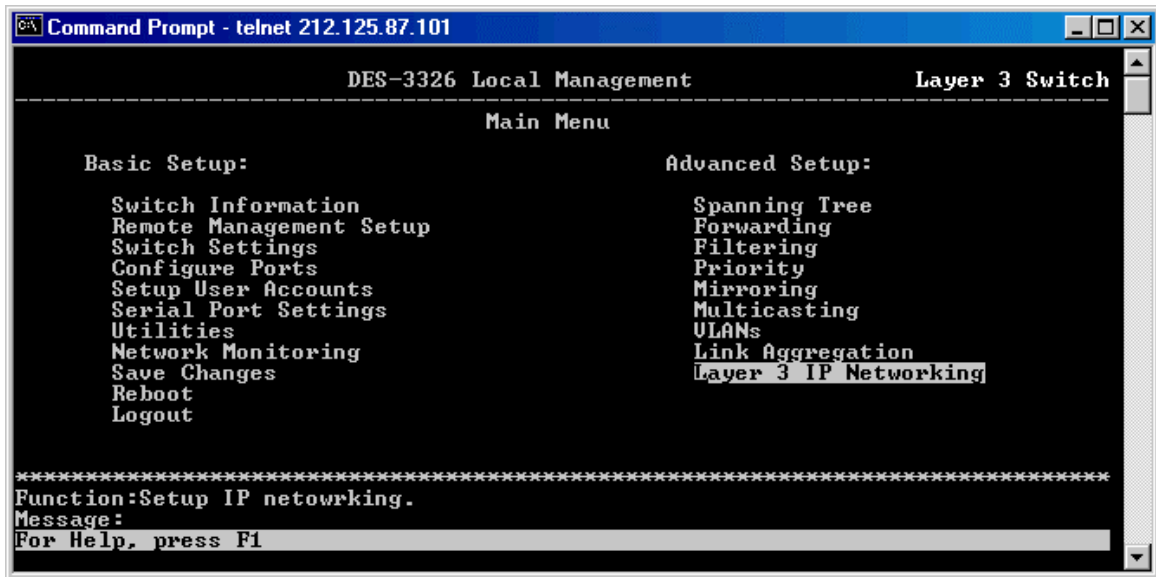


Fig 11. Layer 3 IP Networking

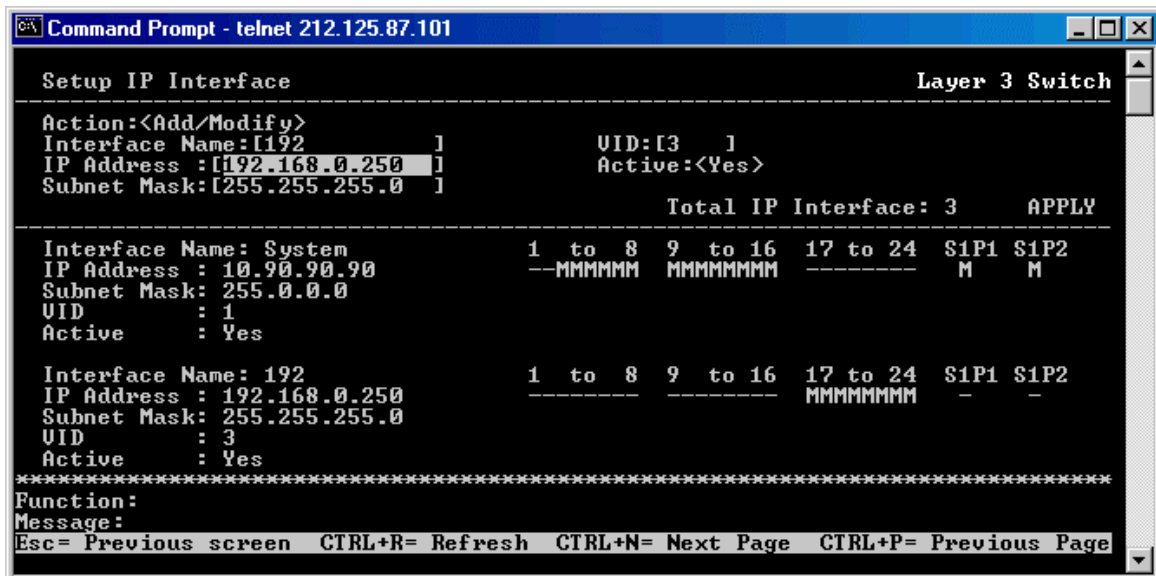


Fig 12. IP Interface Setup

Once again in this example we have used the first octet for the interface name. The IP address is the IP address of the switch in that particular subnet, we have chosen 192.168.0.250 MASK 255.255.255.0. The VID is the PVID set in the VLAN configuration previously done. After the config is applied, the screen will show you the configuration as in fig 12.

```

Command Prompt - telnet 212.125.87.101
-----
Setup IP Interface                                     Layer 3 Switch
-----
Action:<Add/Modify>
Interface Name:[200]                                UID:[3 1]
IP Address : [200.10.20.250]                          Active:<Yes>
Subnet Mask:[255.255.255.0]
-----
Total IP Interface: 3      APPLY
-----
Interface Name: System                                1 to 8 9 to 16 17 to 24 S1P1 S1P2
IP Address : 10.90.90.90                            --MMMMM MMMMMMMM ----- M M
Subnet Mask: 255.0.0.0
UID : 1
Active : Yes

Interface Name: 192                                  1 to 8 9 to 16 17 to 24 S1P1 S1P2
IP Address : 192.168.0.250                            ----- MMMMMMMM - -
Subnet Mask: 255.255.255.0
UID : 3
Active : Yes
*****
Function:Apply the settings.
Message:
Esc= Previous screen CTRL+R= Refresh CTRL+N= Next Page CTRL+P= Previous Page

```

Fig 13. Subnet 192 Config

```

Select Command Prompt - telnet 212.125.87.101
-----
Setup IP Interface                                     Layer 3 Switch
-----
Action:<Add/Modify>
Interface Name:[212]                                UID:[2 1]
IP Address : [212.125.87.101]                          Active:<Yes>
Subnet Mask:[255.255.255.128]
-----
Total IP Interface: 3      APPLY
-----
Interface Name: 212                                  1 to 8 9 to 16 17 to 24 S1P1 S1P2
IP Address : 212.125.87.101                            MM----- - -
Subnet Mask: 255.255.255.128
UID : 2
Active : Yes

Interface Name:                                     1 to 8 9 to 16 17 to 24 S1P1 S1P2
IP Address :
Subnet Mask:
UID :
Active :
*****
Function:
Message:
Esc= Previous screen CTRL+R= Refresh CTRL+N= Next Page CTRL+P= Previous Page

```

Fig 14. Subnet 212 Config

Ensure all the configurations have been applied, check the IP interfaces addresses. If all looks okay return to the main menu and save the configuration.



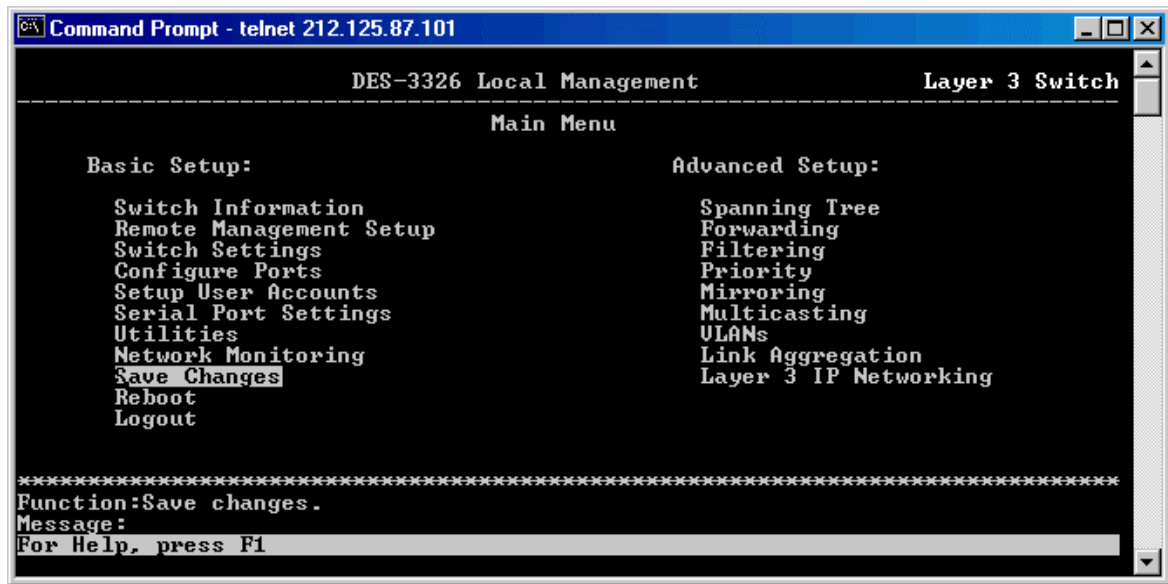


Fig. 15 Save Configuration

## How to Test the Configuration

To test the configuration, do a ping test from a PC on the 192 subnet to a PC on the 200 subnet. If successful, the layer configuration is complete. If the ping test produces a 'request timed out' check the configuration above more carefully. You may need to perform a factory reset and re-config the switch.

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