# Advanced Router Setup

A guide for configuring advanced features on a router including VLANs, Network Address Translation (NAT), static routing, and dynamic routing protocols to enhance a network’s functionality and security.

### Step 1: Access Router

Log into the router's management interface using the appropriate IP address, username, and password. This is usually done via a web browser or through a command-line interface (CLI).

### Step 2: Backup Config

Before making changes, save a backup of the current router configuration from the management interface. This allows you to restore the original settings if needed.

### Step 3: Configure VLANs

Navigate to the VLAN settings and create VLANs by assigning VLAN IDs and names. Allocate the desired ports to each VLAN and configure the inter-VLAN routing if necessary.

### Step 4: Setup NAT

Go to the NAT settings. Configure the outbound and inbound NAT rules to determine how traffic is translated between the local network and the internet. Typically, set up a dynamic NAT for outbound traffic and static NAT for servers that need external access.

### Step 5: Static Routing

In the routing section, add static routes to specify a fixed path for traffic to a particular network destination. Enter the destination network, subnet mask, and the gateway or interface.

### Step 6: Dynamic Routing

Enable dynamic routing protocols such as OSPF or EIGRP as needed. Configure the properties of the chosen protocol, including network statements and any necessary authentication.

### Step 7: Save Changes

After configuring the settings, save the new configuration to the router’s memory. This usually involves a 'save' or 'commit' command in the CLI, or a save button in the web interface.

### Step 8: Test Configuration

Test the new configuration by checking connectivity between VLANs, through the NAT, and along static and dynamic routes. Use tools like ping and tracert/traceroute to verify.

### Step 9: Document Changes

Record all configuration changes and the reasons for them in a change log or configuration management database. Include details like the date of the change and personnel involved.

## General Notes

### Access Permissions

Ensure you have the necessary permissions and access rights before attempting to configure router settings.

### Firmware Update

Consider updating the router to the latest firmware version before making changes to benefit from the latest features and security patches.

### Default Settings

If unsure about a setting, refer to the manufacturer's documentation for default values and recommendations.