Example - How to Configure DHCP with Dynamic DNS

https://campus.barracuda.com/doc/29856/

The DHCP service can be used as both a stand-alone service and in conjunction with DNS. If you just want to assign IP addresses automatically to clients, you only need to configure the DHCP service.

However, if you want to keep track of your clients based on their individual FQDNs and their IP addresses, these names must be updated in the DNS database with their corresponding IP addresses. To do so, you must additionally configure the Dynamic DNS service so that changes in the DHCP database are synchronized with the DNS database.

This article contains a description of an example DHCP with Dynamic DNS configuration.

Note that you must adapt the configuration (interfaces, network addresses, IP addresses) for your individual requirements.

Use Case-Related Requirements and Constraints

- This article describes how to configure an internal domain `mydomain.intern` that is managed by your internal DNS server for the clients on your LAN.
- The DNS server will accept DNS queries from clients in the network 10.0.7.0/24 that will connect to the DNS server on the interface with the IP address 10.0.7.1.
- The DHCP server will provide DHCP IP addresses from the range of 10.0.7.40 to 10.0.7.60 to the clients.
- Dynamic DNS must be configured to contain all the required information for the associated DNS zone. This information will ensure that the DHCP and DNS databases are in sync with their associated data categories.
- The configuration will only cover IPv4 addresses.

Before You Begin

Ensure that...

- You have configured a network where you want your DNS to serve requests for client queries (in this case: 10.0.7.0/24).
- You have configured a Shared IP for the DNS listening service, e.g., 10.0.7.1.
- You have an FQDN that relates to your domain and to the clients within that domain. In this article, the name `mydomain.intern` will be used as an example internal domain.
- Each client device in the network has a unique hostname.

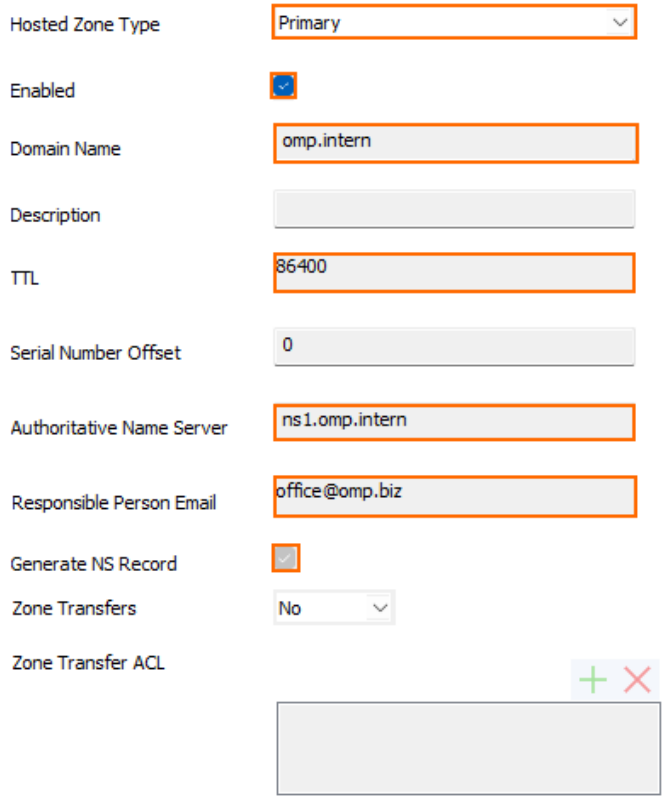
Configure the DNS Server Host Zone

Create a Primary Zone for Your Domain

For more information, see How to Configure a Zone.

Use the following configuration data:

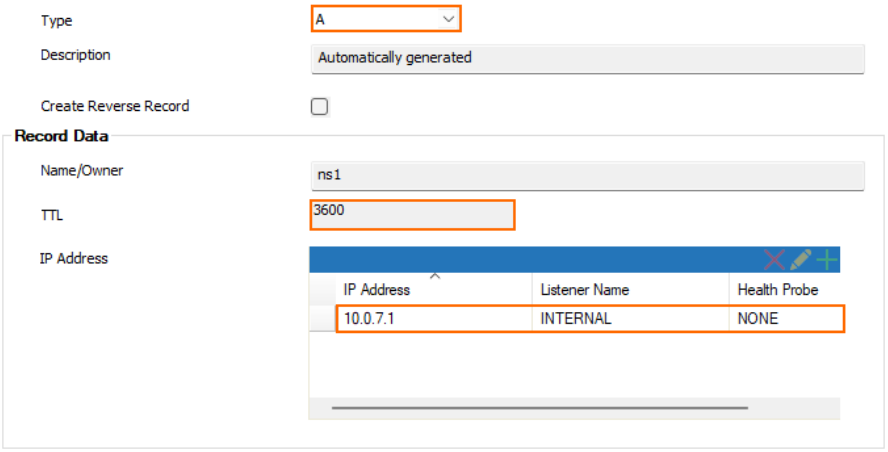
- **Hosted Zone** – **Primary**
- **Zone Status** – Enabled
- **Domain Name** – `mydomain.intern`
- **TTL** – **86400**
- **Authoritative Name Server** – `ns1.mydomain.intern`
- **Responsible Person Email** – `office@mydomain.biz`
- **Generate NS Record** – Select the check box



When required, enter the following data for the **A** record:

- **Type** – **A**

- **TTL** – **86400**
- **IP Address** – `10.0.7.1`
- **Listener Name** – **INTERNAL**
- **Health Probe** – **NONE**



The following image provides an overview of the configured values:

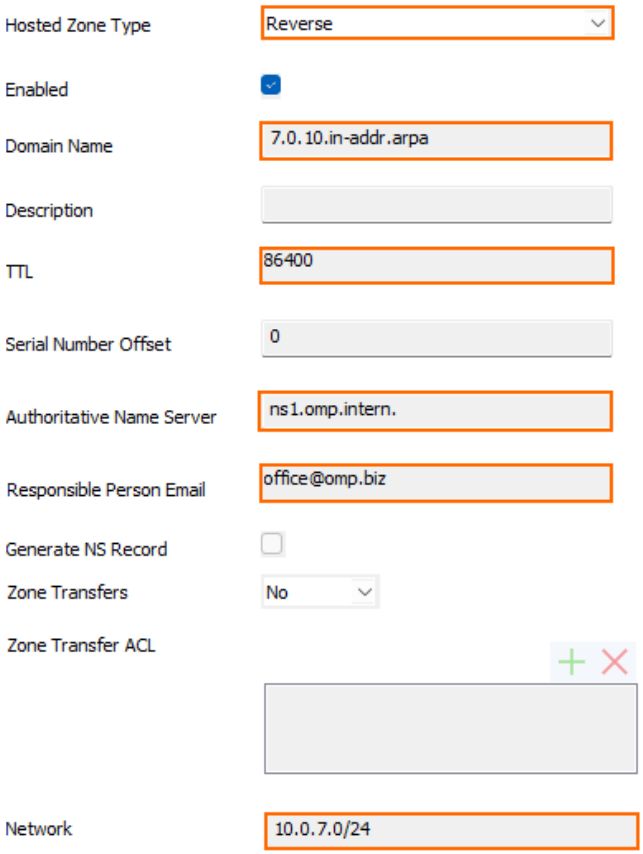
omp.intern (Primary)	Enabled			86400	office@omp.biz		
		NS	@	3600		ns1.omp.intern	Automatically generated
		A	ns1	3600		10.0.7.1	Automatically generated

Create a Reverse DNS Zone for Your Domain

For more information, see How to Configure a Zone, Option 3: Configure a Reverse Zone.

Use the following configuration data:

- **Hosted Zone Type** – **Reverse**.
- **Enabled** – Select the check box.
- **Domain Name** – This field will be generated automatically when entering data into the field **Network** (see below).
- **TTL** – **86400**
- **Authoritative Name Server** – `ns1.mydomain.intern.` (You must include the trailing '.'!).
- **Responsible Person Email** – office@mydomain.biz
- **Network** – `10.0.7.0/24`



Create an NS Record for the Reverse Zone

For more information, see How to Create a DNS Resource Record.

Enter the following data:

- **Type** – NS
- **Name/Owner** – @
- **TTL** – 3600
- **Record Data** – ns1.mydomain.intern.

Create a PTR Record for the Reverse Zone

For more information, see How to Create a DNS Resource Record.

Enter the following data:

- **Type** – PTR
- **Name/Owner** – 2
- **TTL** – 3600
- **Record Data** – ns1.mydomain.intern.

7.0.10.in-addr.arpa (Reverse)	Enabled			86400	office@omp.biz	
		NS	@	3600		ns1.omp.intern.
		PTR	2	3600		ns1.omp.intern.

Configure a DNS Listener

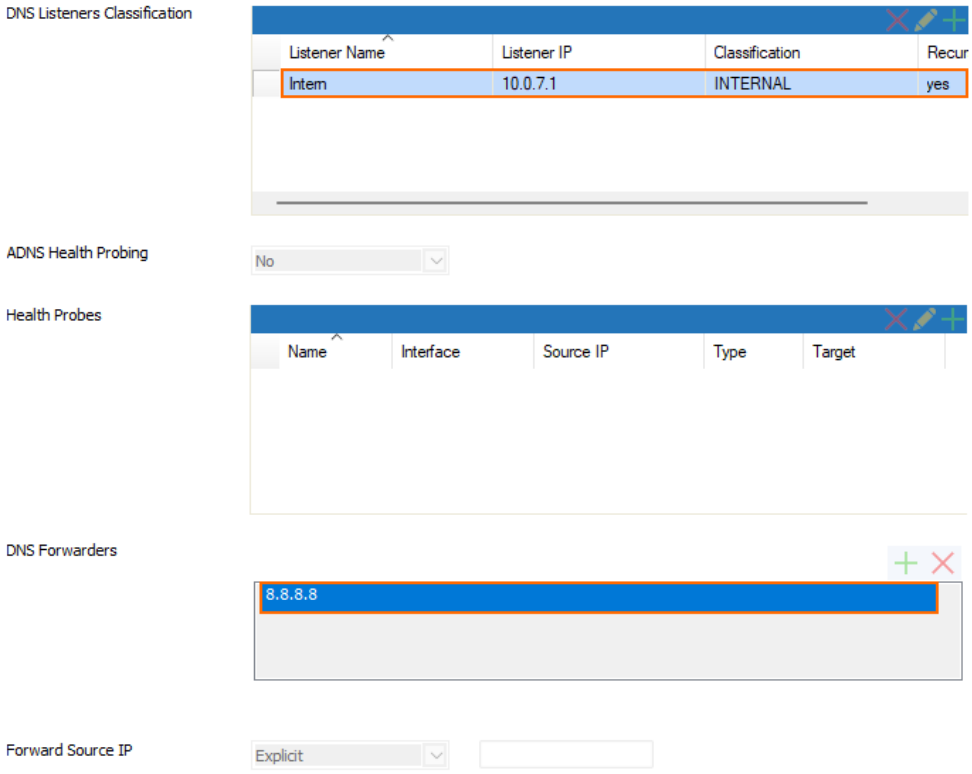
For more information, see How to Configure a DNS Listener.

Enter the following data:

- **Listener Name** – `Intern`
- **Listener IP** – `10.0.7.1`
- **Classification** – `INTERNAL`
- **Recursive Lookup** – Select the check box.

For your DNS forwarder, configure your preferred DNS server(s) to send queries to if the local DNS service cannot resolve the query.

This example uses the IP address 8.8.8.8 for the DNS forwarder.



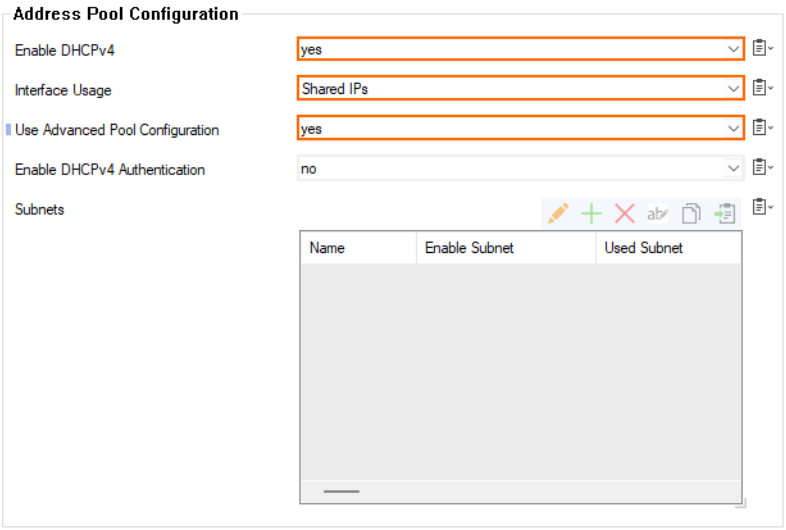
Configure the DHCP Service

To make DHCP work with Dynamic DNS, you must configure an advanced pool for the IP addresses that are going to be leased by the client appliances.

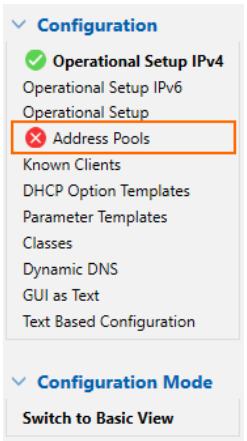
Perform the following steps:

Step 1. Enable Advanced Pool Configuration

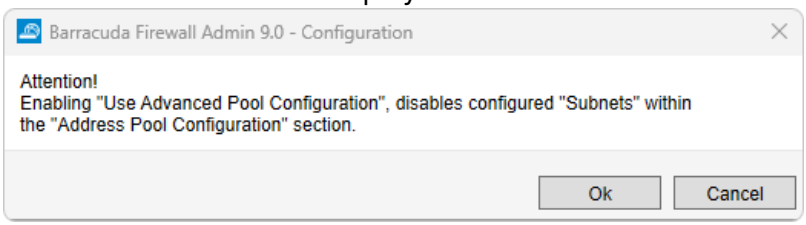
1. Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > DHCP Enterprise Configuration**.
2. Click **Lock**.
3. Ensure that the **Advanced Configuration Mode** is activated. You can check this by clicking **Configuration Mode** at the bottom of the left navigation bar. If the sub-entry shows **Switch to Advanced**, click to do so.
4. In the left navigation column, click **Operational Setup IPv4** unless this menu entry is not already selected.
5. For **Enable DHCPv4**, select **yes** to enable DHCP.
6. For **Interface Usage**, select **Shared IPs** from the menu list.
7. For **Use Advanced Pool Configuration**, select **yes**.



8. The navigation column on the left side displays a red bullet with a white 'x' indicating that you must configure the IP address pool on the advanced level.



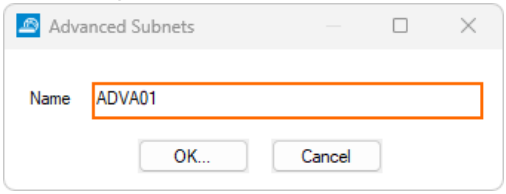
9. A notification window is displayed:



10. Click **Ok**.
11. The menu entry **Address Pools** in the left navigation column is highlighted in bold letters. This indicates that you must do the next configuration here.

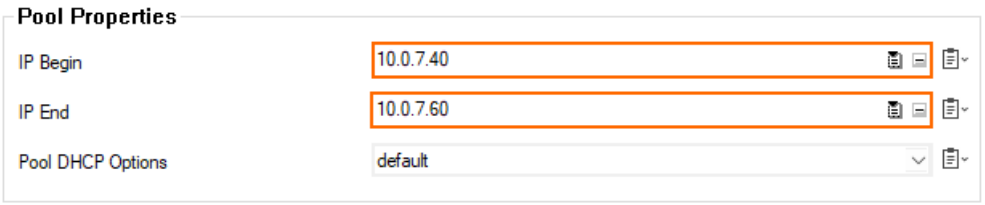
Step 2. Configure Your DHCP Address Pool for Leasing IP Addresses to Requesting Clients

1. Go to **CONFIGURATION > Configuration Tree > Box > Assigned Services > DHCP Enterprise Configuration > Address Pools**.
2. Click the green '+' to add a subnet.
3. The **Advanced Subnets** dialog window is displayed requesting you to enter the name for the address pool.

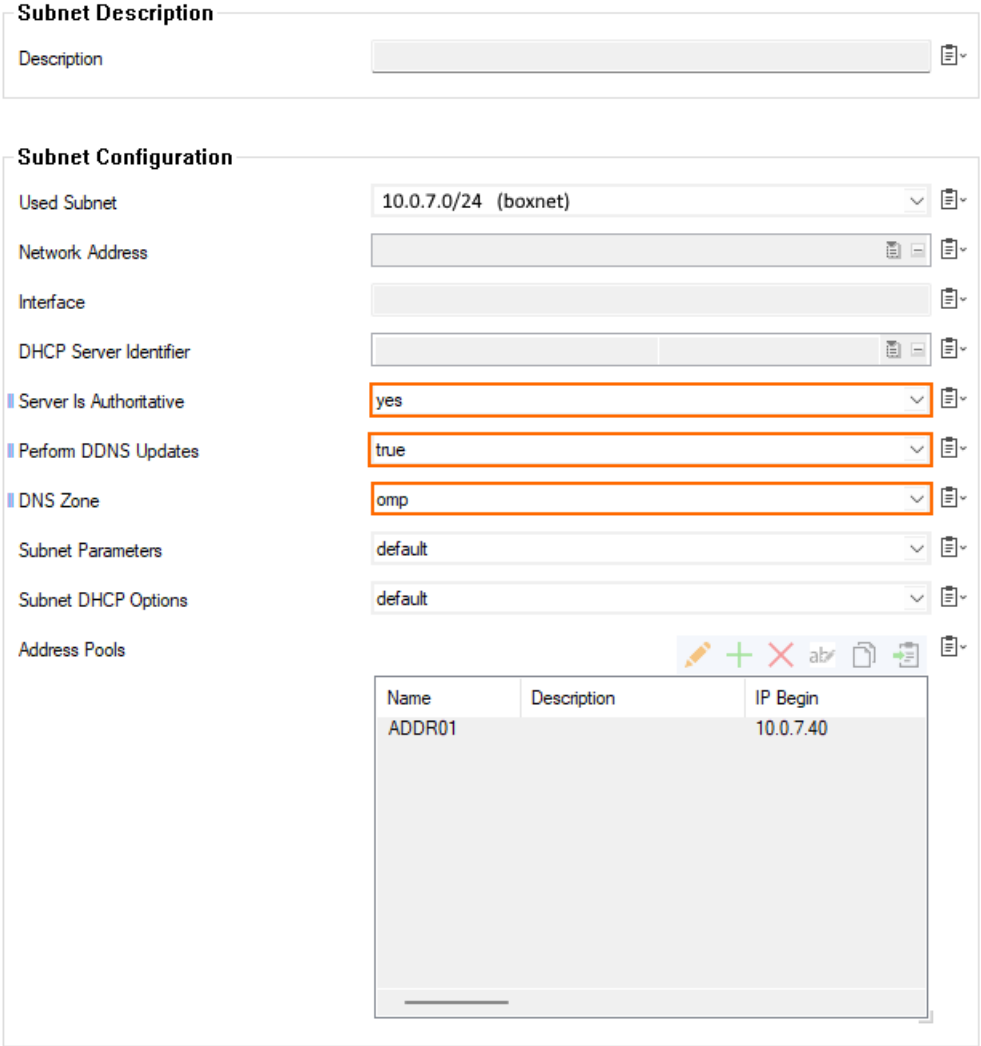


4. Enter the name of your subnet.
5. Click **OK...** .
6. The **Advanced Subnets** configuration window is displayed.
7. For **Description**, enter the name of your subnet.
8. For **Used Subnet**, select the network that the address pool for DHCP leasing addresses will be in.
9. Select the values for the following configuration fields:
    1. **Server is Authoritative** – **yes**
    2. **Perform DDNS Updates** – **yes**. This is the parameter that will enable the communication between DHCP and DDNS.
    3. **DNS Zone** –`mydomain`
10. Click the green '+' for **Address Pools**.

11. The **Address Pools** window is displayed.
12. Enter the name of your new leasing IP address pool.
13. Click **OK...** .
14. Enter a name for the **Description** to give your new address pool a name.
15. In the section **Pool Properties**, enter the following values:
    1. **IP Begin** – Enter `10.0.7.40` for the beginning of your IP address pool.
    2. **IP End** – Enter `10.0.7.60` for the end of your IP address pool.
16. For **Pool DHCP Options**, select **default**.



17. Click **OK**.



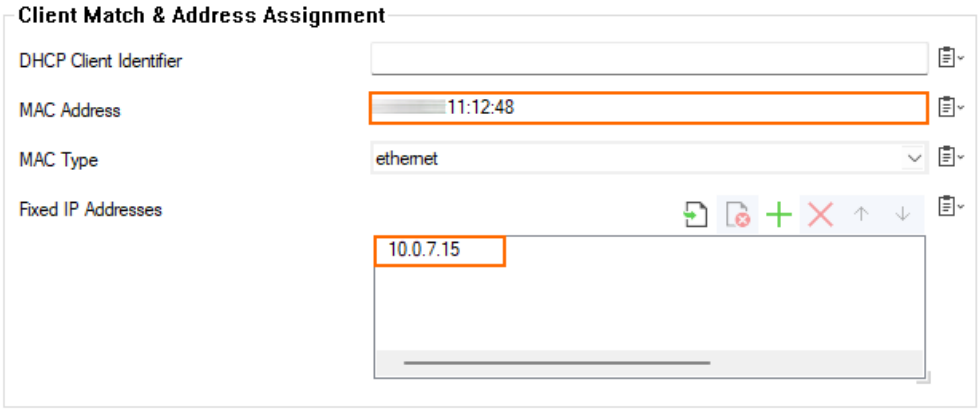
18. Click **OK**.
19. Click **Send Changes/Activate**.

Step 3. Register Known Clients

If there are clients with a fixed IP address in the common network where DHCP IP addresses are dynamically assigned, you must register these appliances here.

1. In the left menu column, click **Known Clients**.
2. Click **Lock**.
3. In the **Known Clients Configuration** section, click the green '+'.
4. The **Client Groups** window is displayed.
5. Click **OK...** .
6. Click the green '+' in the **Client Group Members** section.
7. The **Clients** window is displayed.
8. For **Description**, enter the name of the new client.
9. In the **Client Match & Address Assignment** section, enter the MAC address of your client for **MAC Address**.
10. If you running an ethernet network, select **ethernet** for **MAC Type**.
11. Click on the green '+' for **Fixed IP Addresses** to add an IP address for the configured MAC address.

    Ensure that the IP address is not within the configured range of valid IP addresses from the IP address leasing pool!



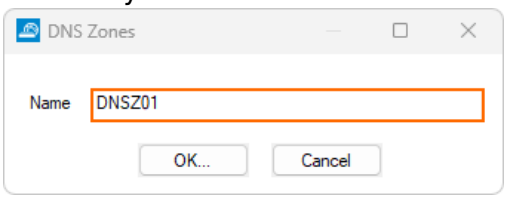
12. Ensure that the following parameters are set as follows:
    1. **Client DHCP Options** – **default**
    2. **Client Parameters** – **default**
    3. **Always Broadcast Reply** – **not-set**
    4. **Duplicate Policy** – **allow**
13. Click **OK**.
14. Click **OK**.
15. Click **Send Changes/Activate**.

Step 4. Configure DDNS

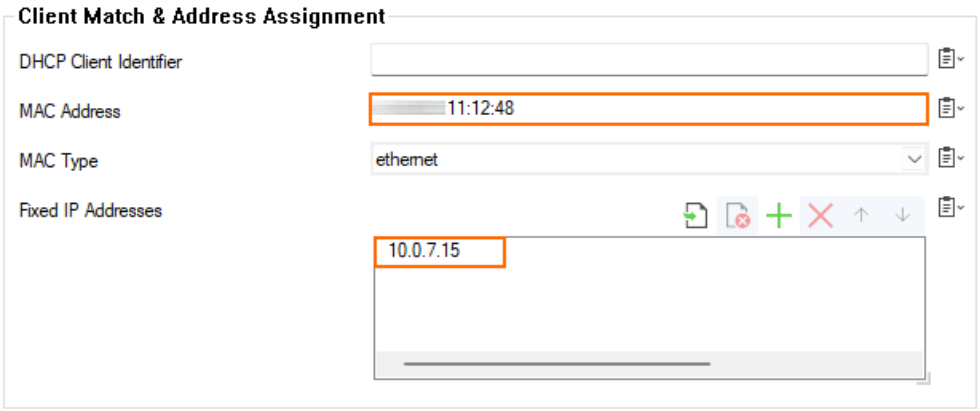
Finally, you must configure the DDNS to operate in the required mode.

1. In the left menu column, select **Dynamic DNS**.

2. Click **Lock**.
3. For the **DNS Update Scheme**, select **interim**.
4. For **Client Updates**, select **allow**.
5. For **DNS Zones**, click the green '+' in the **DNS Authentication** section to add a zone.
6. The **DNS Zones** dialog window is displayed requesting you to enter the name for the DynDNS zone to sync with the DHCP service.



7. Enter the name of the zone (e.g., mydomain).
8. Click **OK...** .
9. The **DNS Zones** configuration window is displayed.
10. For **Zone Type**, select **Both** from the menu list.
11. For the **DNS Server IP**, enter `10.0.7.1.`
12. For **Forward Zone Name**, enter `mydomain.intern`
13. For **Reverse Lookup Net**, enter `10.0.7.0.`
14. For **Reverse Lookup Netmask**, select **24-Bit** from the menu list.



15. Click **Ok**.
16. Click **Send Changes/Activate**.

Figures

1. dhcp_dyndns_configuration_values_for_primary_zone.png
2. dhcp_dyndns_configuration_values_for_primary_zone_A_record.png
3. dhcp_dyndns_configuration_values_for_primary_complete_list.png
4. dhcp_dyndns_configuration_values_for_reverse_zone.png
5. dhcp_dyndns_configuration_values_for_reverse_zone_complete_list.png
6. dhcp_dyndns_configuration_values_for_DNS_listener.png
7. dhcp_dyndns_configuration_dhcp_configuration.png
8. dhcp_dyndns_configuration_menu_column_for_advanced_pool_config.png
9. dhcp_dyndns_configuration_values_for_dhcp_notification_window.png
10. dhcp_dyndns_configuration_dialog_window_for_advanced_subnets.png
11. dhcp_dyndns_configuration_values_for_dhcp_pool.png
12. dhcp_dyndns_dhcp_advanced_pool_configuration_window.png
13. dhcp_dyndns_configuration_client_match_address_assignment.png
14. dhcp_dyndns_configuration_dialog_window_for_dyn_dns_zones.png
15. dhcp_dyndns_configuration_client_match_address_assignment.png