



## Configuring Dynamic DNS on the LAN-Cell 2

### Technote LCTN0016

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## **This TechNote applies to LAN-Cell models:**

### **LAN-Cell 2:**

LC2-411 (firmware 4.02 or later)

## **Document Revision History:**

| <b>Date</b>        | <b>Comments</b> |
|--------------------|-----------------|
| September 11, 2009 | Initial Release |

## Introduction

In situations where you are unable to obtain a “static” WAN IP address from an ISP (wired or cellular), the LAN-Cell 2 can be configured to automatically update one of several different “dynamic DNS” (DDNS) services with its current public IP address every time that IP address changes. These dynamic DNS services allow you to map a static fully qualified domain name (FQDN) to the dynamic IP address assigned by your ISP.

By using DDNS, most applications can access the LAN-Cell and its remotely attached devices using the DDNS hostname name rather than the IP address. The LAN-Cell 2 supports several DDNS service providers; the most commonly used service is DynDNS. This TechNote describes how to configure both the DynDNS service and the LAN-Cell 2 for Dynamic DNS updates. The process is similar for all other DDNS services.

This Technote is for illustration purposes only.

## Setting up a DynDNS Account & Hostname

Before configuring the LAN-Cell, you must create a login account with DynDNS and create your desired “hostname” by which you will access the LAN-Cell.

1. Go to the DynDNS web site: <http://www.dyndns.com>
2. Create a new user account (Figure 1). Record the username and password you selected.  
Note: Do not use non-alphanumeric characters (~!@#\$%^&\*, etc) in the username and/or password.

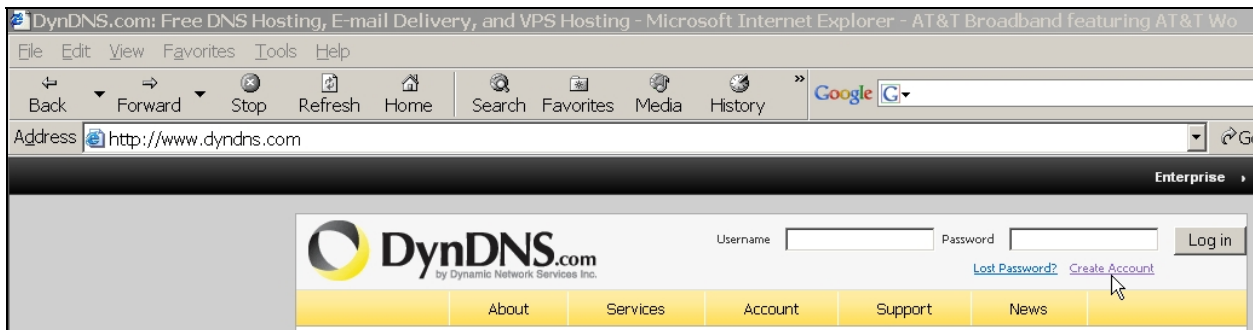


Figure 1: DynDNS.com Home Page

3. Select the type of dynamic DNS service you require. DynDNS currently offers 3 choices:
  1. Dynamic DNS Free – Use one of the pre-existing domains available on DynDNS for up to 5 different hosts. Requires that the dynamic IP address change at least once every 30 days or have the expiration timer manually reset.
  2. Dynamic DNS Pro – Up to 25 hosts which do not expire on the domains available from DynDNS. Annual fee applies (currently \$15.00).
  3. Dynamic DNS Custom – Up to 75 hosts on a domain that you own. You must already have a domain registered or register a new one with DynDNS. Annual fee applies (currently \$29.95).

You can begin with the free DNS service and upgrade to the other services as required.

- Select the Account > My Hosts > Add Host Services option (Figure 2) to define a new dynamic DNS hostname. If you are using the Custom DNS service, select My Zones/Domains and then Add Custom DNS to create a new Zone before adding your new hostname in that zone/domain.

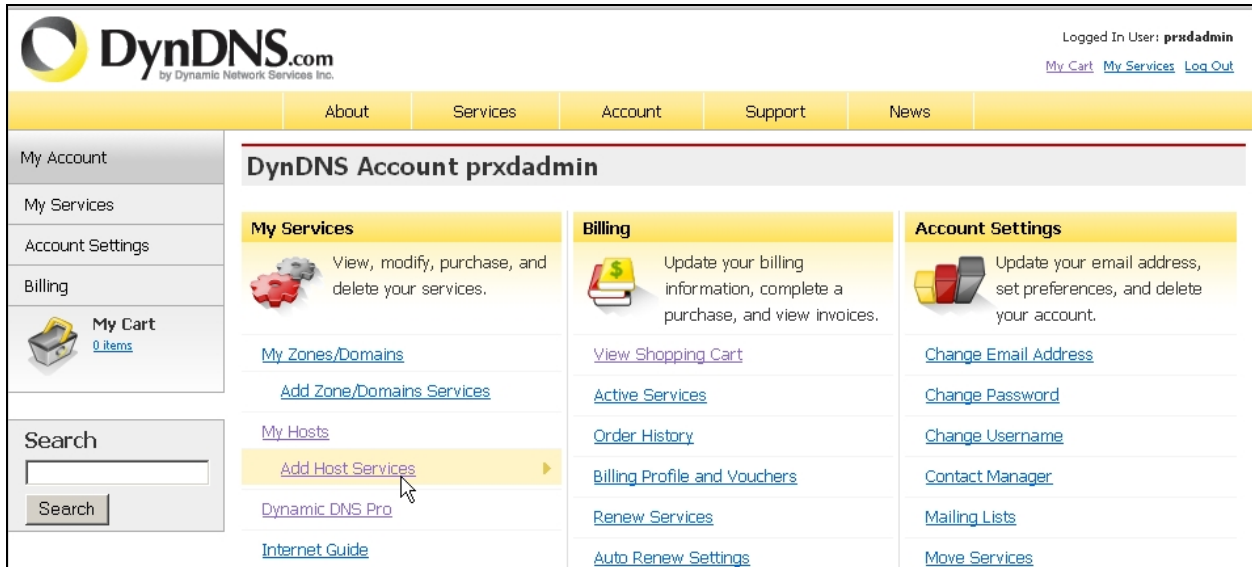


Figure 2: Free DynDNS Host Services

- On the Add New Hostname screen (Figure 3), enter a descriptive name for your LAN-Cell (**Hostname**) and select one of the available DynDNS domains. In our example, we're creating "my-lan-cell" in the "dnsalias.net" domain.

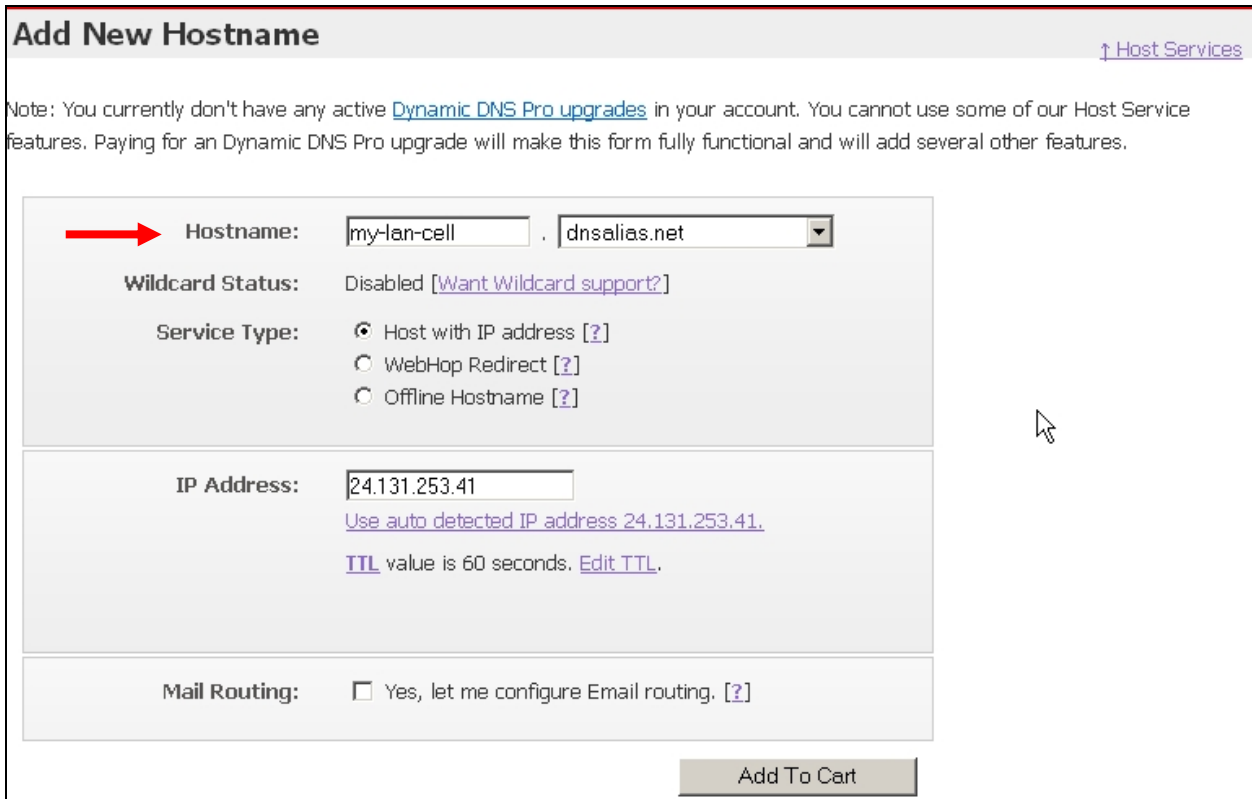


Figure 3: Adding a Free DynDNS Host

Select “Host with IP Address” as the **Service Type** and click the “Use auto detected IP address” link to pre-fill the **IP Address** field. Add this host to your “cart” and check-out. There is no cost for the free hostnames, but you must complete the check-out process to activate the hostname.

## Configuring DDNS Service in the LAN-Cell 2

1. Log into the LAN-Cell’s web interface and select the ADVANCED > DNS > DDNS screen (Figure 4)

The screenshot shows the DDNS configuration page in the Proxycast web interface. The left sidebar contains navigation options like HOME, NETWORK, WIRELESS, SECURITY, ADVANCED, NAT, DNS, REMOTE MGMT, STATIC ROUTE, POLICY ROUTE, BW MGMT, Custom APP, ALG, LOGS, MAINTENANCE, and LOGOUT. The main content area is titled 'DNS' and has tabs for System, Cache, DHCP, and DDNS. The 'Account Setup' section includes a checkbox for 'Active', a dropdown for 'Service Provider' (WWW.DYNDNS.COM), and input fields for 'Username' (proxadmin) and 'Password'. The 'My Domain Names' table has the following structure:

| # | Domain Name              | DDNS Type | Offline                  | Wildcard                 | WAN Interface | IP Address Update Policy | HA*                      |
|---|--------------------------|-----------|--------------------------|--------------------------|---------------|--------------------------|--------------------------|
| 1 | my-lan-cell.dnsalias.net | Dynamic   | <input type="checkbox"/> | <input type="checkbox"/> | Cellular      | Use WAN IP Address       | <input type="checkbox"/> |
| 2 |                          | Dynamic   | <input type="checkbox"/> | <input type="checkbox"/> | Cellular      | Use WAN IP Address       | <input type="checkbox"/> |
| 3 |                          | Dynamic   | <input type="checkbox"/> | <input type="checkbox"/> | Cellular      | Use WAN IP Address       | <input type="checkbox"/> |
| 4 |                          | Dynamic   | <input type="checkbox"/> | <input type="checkbox"/> | Cellular      | Use WAN IP Address       | <input type="checkbox"/> |
| 5 |                          | Dynamic   | <input type="checkbox"/> | <input type="checkbox"/> | Cellular      | Use WAN IP Address       | <input type="checkbox"/> |

\*HA: High Availability. Enable this option to bind with another WAN interface when the specified WAN interface is not available.

Figure 4: LAN-Cell DDNS Screen

2. Mark the DDNS Service as **Active**.
3. Select the **DDNS Service Provider** from the drop-down list (www.DynDNS.com).
4. Enter the DDNS **Username** and **Password** exactly as you created them on the DDNS service web site.
5. Enter the Fully Qualified Domain Name in the **Domain Name** field. Note, this must be the complete hostname plus the domain name that you created on the DDNS Service web site (Figure 3). Be sure to use the syntax hostname.domain.top-level-domain (e.g. my-lan-cell.dnsalias.net)
6. Select the **DDNS Type** you are using (Dynamic for the Free or DNS Pro services or Custom for the DNS Custom service).
7. Confirm that the **WAN Interface** with a dynamic IP address is selected.
8. Select the “Use WAN IP Address” option under **Update Policy**.
9. Click **Apply** to save our settings.

The LAN-Cell will now automatically update the DDNS service with the current dynamic public IP address of the indicated interface every time the IP address changes.

You can confirm that DDNS is operating correctly by checking the LAN-Cell's log for an entry such as (Figure 5):

|                        |   |  |      |
|------------------------|---|--|------|
| 2009-09-14<br>04:28:09 | Update domain name my-lan-cell.dnsalias.net with IP:166.213.213.91 successfully |  | DDNS |
|------------------------|---|--|------|

Figure 5: LAN-Cell Log of Successful DDNS Update

You can also return to the DynDNS web site and examine the current IP address associated with your hostname (Figure 6). It should match the current dynamic IP address assigned to the interface on your LAN-Cell (Figure 7).

| Host Services  |         |                |                       |
|--|---------|----------------|-----------------------|
| Hostname   | Service | Details        | Last Updated          |
| <a href="http://my-lan-cell.dnsalias.net">my-lan-cell.dnsalias.net</a> | Host    | 166.213.213.91 | Sep. 14, 2009 4:28 AM |

Figure 6: DynDNS Update Status Screen

| Interfaces  | Status    | IP/Netmask                         | IP Assignment | Renew                               |
|-------------|-----------|------------------------------------|---------------|-------------------------------------|
| WAN         | Down      | 172.20.5.1/<br>255.255.0.0         | Static        |                                     |
| Cellular    | Up        | 166.213.213.91/<br>255.255.255.255 | IPsec client  | <input type="button" value="Drop"/> |
| Dial Backup | Down      | 0.0.0.0/ 0.0.0.0                   | N/A           | <input type="button" value="Dial"/> |
| + LAN       | 100M/Full | 192.168.7.4/<br>255.255.255.0      | Static        | N/A                                 |
| + WLAN      | 100M/Full | 10.1.1.1/<br>255.255.0.0           | Static        | N/A                                 |
| + DMZ       | 100M/Full | 172.16.1.1/<br>255.255.0.0         | Static        | N/A                                 |

Figure 7: LAN-Cell Interface Status Window (Home Screen)

## Usage Notes

- Once the DDNS name has been successfully updated, you can access the LAN-Cell and any devices connected to it by using the fully-qualified domain name instead of the IP address. Therefore, in our example:

http://my-lan-cell.dnsalias.net ↔ http://166.213.213.91

- You can use the High Availability (HA) option on the LAN-Cell's DDNS screen in conjunction with the LAN-Cell's WAN fail-over mechanisms so that the same DDNS hostname is used regardless of which WAN interface is active. See the [LAN-Cell 2 User Guide](#) for more information on the DDNS HA option.

## Troubleshooting

- Updates are not posting to the DynDNS service:
  - Ensure that the type of DynDNS account that you've set up (Dynamic, Static, Custom) matches the value selected in the LAN-Cell.
  - Check that your DynDNS username and password are correctly entered in the LAN-Cell (case sensitive)
  - Do not use characters such as (\$,%, @, &, ^, /, \, etc.) in your DynDNS username or password.
  - Check that your LAN-Cell has received valid DNS server information from your ISP. Check ADVANCED > DNS > SYSTEM for the Name Server Address(es) in use. Also check the CACHE screen to see that dyndns.org entries have been successfully resolved.
- DynDNS server's Last Updated time for the hostname is much earlier than the current time and the LAN-Cell was just restarted.
  - Check the Clock & Time-Zone settings on the LAN-Cell (MAINTENANCE > TIME&DATE). DynDNS shows updates using GMT/UTC.
  - The DynDNS protocol is such that if the WAN IP has not changed, the LAN-Cell is not supposed to send the update to DynDNS. If you force the LAN-Cell to update DynDNS with an IP address that matches the IP address that DynDNS already has on file as the current IP address for that host name, then the update is ignored by the DynDNS servers. This is all in accordance to DynDNS's policies. The DynDNS web site status screen reflects the last time that the host's IP address was actually changed, not the last time it was confirmed to be the same. Please see DynDNS's policy on when they will accept update transactions (<https://www.dyndns.org/support/abuse.html>).
- DynDNS is being updated with the correct dynamic IP, but I still can't access the LAN-Cell using the DDNS name.
  - Dynamic DNS records have a Time-To-Live (TTL) value that determines how long they are valid before changes should be propagated to other DNS servers. The default for DynDNS is 60 seconds. In addition, the DNS Name Servers used by your PC may have longer cache TTL's. This can result in older IP addresses being returned for some time even after the DDNS servers have been successfully updated.
  - Wait several minutes and try your request again.
  - Flush the DNS cache on your PC and/or any intervening DNS Name Servers (or relay agents)

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