

## Using DDNS to Deal With Changing IP Addresses

### **A public IP address is the network version of a phone number to your router**

This article is written for a residential customer who is trying to configure their DVR for remote internet access. In order for client software (like PSS) or a web browser plugin to connect to a network DVR, it must know the public IP address of the router that is connected to the DVR. This IP address is also sometimes called an external IP because it is outside and separate from the local area network (LAN). It is like a unique phone number that allows one network device to connect (or call up) another device. As a general rule, when most businesses obtain an internet service account they are issued at least one fixed IP address. "Fixed" means that the IP never changes and it can reliably be used to establish a connection to our router.

However, for the residential customer difficulty often arises because ISPs typically do not default to issuing a fixed IP address. Moreover, it is not unusual for them to force the IP address of your router to change frequently. While not officially stated, it is their hope that customers will elect to pay a monthly fee for a fixed IP address which can sometimes exceed \$12.00 / month.

### **Dynamic Domain Name Service (DDNS) to the Rescue!**

DDNS is method to create and maintain a **host name** such that it will always resolve to the current external IP address of your router.

**Once created and setup, the host name can then be substituted everywhere client software (including a web browser) calls for the entry of an IP address.** The **host name** looks identical to a URL you might type in your browser. For example, "myrouter.webhop.net". Another network service called [DNS](#) (just plain Domain Name Service), is the mechanism that actual resolves or translates the host name / URL to an explicit IP address at the time communication software needs it.

In a nutshell, DDNS is the creation and maintenance of a host name / URL that will constantly be updated to resolve to the current external IP address of your router--no matter how frequently your greedy ISP decides to change it.

### **Is this DDNS going to cost me more money?**

More good news--there are a number of commercial websites that offer a free DDNS service to the public in order to make potential customers aware of other paid services they offer. A couple of these companies have been around long enough (many years) to prove that they are reliable and easy to work with. Subsequently, many router manufacturers and our QV Series DVRs now offer direct support in their firmware for these free DDNS services. For the tutorial below, the company we are going to use as an example is [DynDNS.com](#). However, [no-ip.com](#) is another website that is also supported by our DVRs and has more names for the user to choose from when selecting a host name / URL.

### **How does it work?**

Once the user signs up for the free service and a **host name** is created and activated, maintenance of the DDNS is done by two pieces of software talking to each other. The first piece is the client software that is located within the private or local area network. In our case this utility software resides in the DVR firmware, but it could also be activated within a supported router or run on a PC. The job of this client software is to monitor the external IP address for change. If your ISP changes the external IP address of the router, it contacts the DDNS host server (example, DynDNS.org) and sends the new IP to update the host name / URL.

### **Great! Now how do we make all this magic happen?**

Now that we have the why and theory of DDNS under our belts, we can explicitly explain the 3 main steps:

- a) Making sure plain DNS is properly configured in the Network Setup section of the DVR.
- b) Signing up, creating, and activating your DynDNS.com **host name / URL**. We'll also verify that it is working.
- c) Configuring **DDNS** in the Network Setup of the DVR.

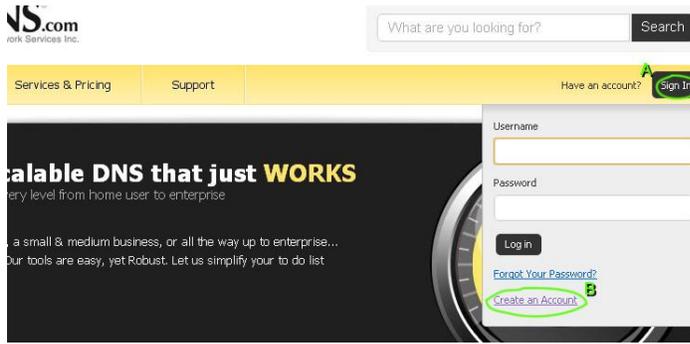
### **Step 1: Configure DNS Before We Begin...Important!**

It is very important to configure "DNS" under Network settings before we begin. DNS is the mechanism that resolves / converts server names & URLs into useable IP addresses. The DVR doesn't automatically figure out the IP addresses of your Internet Service Provider's Dynamic Name Servers. You need to configure this first because the DDNS service on the DVR needs convert the **host name** that we enter later. Luckily, this is not hard to do with the proper guidance. As a side note, DNS also needs to be configured in order for the DVR to interface with a Email Alerts or any server name for that matter (NTP, FTP, etc.).

## Step 2: Start the Process to Create a Free Account at DynDNS.com

Our QV DVRs series also support No-IP.com, but for this demonstration we're going to use DynDNS.com. Before we attempt to create a DDNS host name, it will be necessary to create a free account. Go to [DynDNS.com](http://DynDNS.com):

**A:** Click the "Sign In" button **B:** Click "Create an Account"



## Step 3: Fill Out & Submit Form

This form is fairly straight forward--check out the sample entry below. Click the **Create Account** button to proceed.

Create account or log in to continue checkout:

Username	<input type="text" value="MyUserName"/>
Password	<input type="password" value="*****"/>
Confirm password	<input type="password" value="*****"/>
Email	<input type="text" value="myEmail@address.com"/>
Confirm Email	<input type="text" value="myEmail@address.com"/>
Security Image	
	Enter the numbers from the above image: <input type="text" value="61357"/>
Subscribe to	<input type="checkbox"/> DynDNS.com newsletter (1 or 2 per month) <input type="checkbox"/> Dyn Inc. press releases
	<input checked="" type="checkbox"/> I agree with the <a href="#">acceptable use policy (AUP)</a> and <a href="#">privacy policy</a> .
	<input type="button" value="Create Account"/>

Already Registered?

Username

Password

[Forgot your password?](#)

Please record / save your User Name and Password to a safe place. They will be needed later when we configure the DVR to send new IP addresses to the DynDNS website.

## Step 4: Check Your Email & Activate Your New DynDNS.com Account

Once the account is created, the following screen will display instructing to check for an email message that will contain a link to activate the account.

One more step to go...

We've sent an email to [info@vattwire.net](mailto:info@vattwire.net), to verify your account. Please check your inbox and click on the confirmation link.

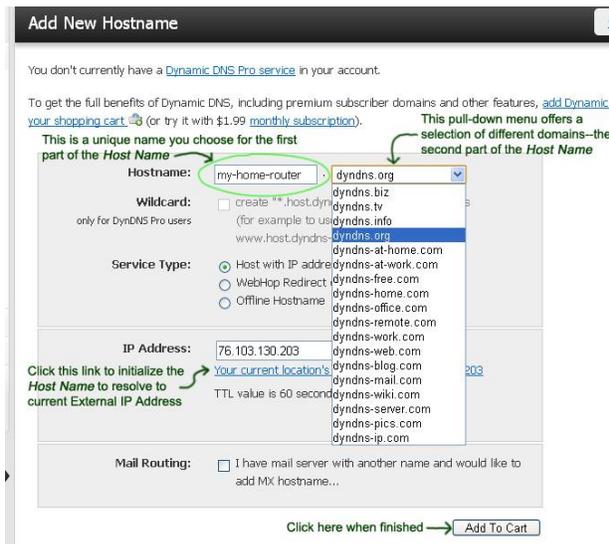
If you do not receive the email in the next few minutes you can try [resending it](#).

Thanks for choosing DynDNS.com!



## Step 5: Create The DynDNS Host Name

Now that we have an active DynDNS account, we can create our free **Host Name**. To do this, look for the link that says "Free Dynamic DNS" at the bottom of the DynDNS.com home page, or click here: [Click Here to go to the Add New Host Name page](#):



**Add New Hostname**

You don't currently have a [Dynamic DNS Pro service](#) in your account.

To get the full benefits of Dynamic DNS, including premium subscriber domains and other features, [add Dynamic DNS to your shopping cart](#) (or try it with \$1.99 [monthly subscription](#)).

This is a unique name you choose for the first part of the **Host Name**. This pull-down menu offers a selection of different domains—the second part of the **Host Name**.

**Hostname:** my-home-router . dyndns.org

**Wildcard:**  create \*.host.dyndns.com (for example to use www.host.dyndns.com)

**Service Type:**

- Host with IP address
- WebHop Redirect
- Offline Hostname

**IP Address:** 76.103.130.203

[Click this link to initialize the Host Name to resolve to current External IP Address](#)

TTL value is 60 seconds

**Mail Routing:**  I have mail server with another name and would like to add MX hostname...

[Click here when finished](#) →

## Step 6: Click Through Cart Checkout Screens

Click through the following screens to finish the cart checkout process which will end in having the host name created and activated.

**Shopping Cart**

Host [my-home-router.dyndns.org](#) added to cart. **Finish FREE checkout to activate.**

Click Here → [Proceed to checkout](#)

**Upgrade Options**

Free accounts allow only two Dynamic DNS hosts.

- to add more and enjoy additional benefits for only \$15.00 per year, [purchase Dynamic DNS Pro](#).
- to get Dynamic DNS for **your own domain**, use [Custom DNS](#).

**Dynamic DNS Hosts**

This is where your new *Host Name* appears. Use it anywhere software calls for an IP address to your router.

<a href="#">my-home-router.dyndns.org</a>	-	remove	\$0.00
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Order Total: \$0.00

Next Screen ↓

**Free Services Checkout**

Once you have confirmed the contents of your cart your services will be instantly activated.

Service	Period	Price
Dynamic DNS Hosts		
<a href="#">my-home-router.dyndns.org</a>	-	\$0.00
Sub-Total:		\$0.00

Click Here → [Activate Services >>](#)

Next Screen ↓

**Host Services** [↑ My Services](#)

[my-home-router.dyndns.org](#) successfully activated.

Just signed up for my free domain name with DynDNS! Now I can remote desktop, host web sites at home, and more.

Show us some love! [Share](#) [Tweet](#)

Hostname	Service	Details	Last Updated
<a href="#">my-home-router.dyndns.org</a>	Host	76.103.130.203	Apr. 24, 2011 3:29 PM

[» Host Update Logs](#)      Click Here to Finish → [Add New Host](#)

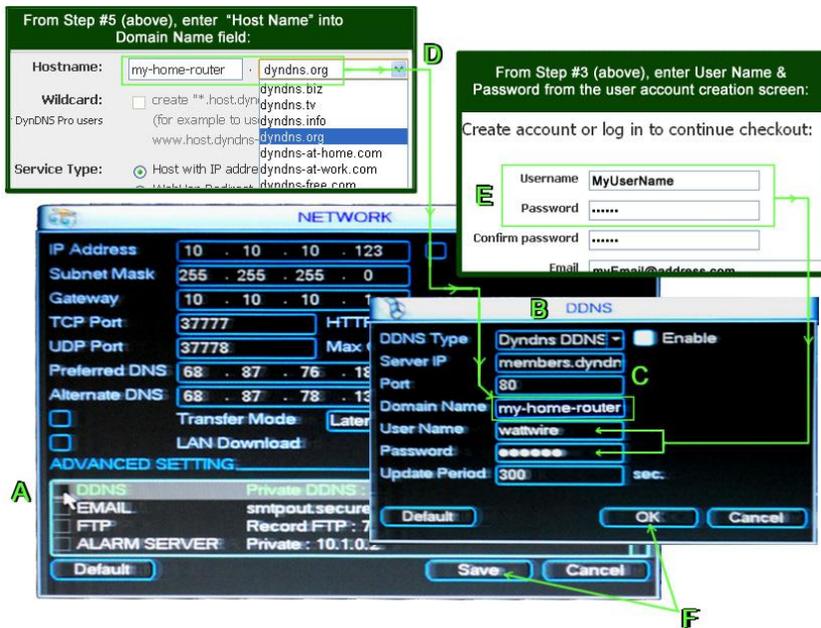
## Finally, We're Done w/ DynDNS.com!

Please record your new **Host Name** to a safe place. It will be needed later when we configure the DVR to send new IP addresses to the DynDNS website.

### Step 7: Configure Advanced Network Setting "DDNS" on the DVR

Finally, we can move to the DVR and configure and enable the DDNS update utility. This is done by going to Main Menu-->Settings-->Network. From the Network Menu, follow these steps:

- A:** At the bottom of the screen under "Advanced Setting", scroll down and double-click the line labeled "DDNS"
- B:** Select "DynDNS DDNS" from the top pull-down menu; Make sure the "Enable" box is checked.
- C:** Keep the defaults: "members.dyndns.org" for Server IP and Port 80.
- D:** Enter the personalized **Host Name** that was created in Step #5
- E:** Enter the DynDNS User Name and Password that was entered in Step #3 when the account was created.
- F:** Click "Ok" to close the DDNS menu and then "Save" to save and close the Network Settings.



Now, every 5 minutes (300 seconds) the DVR will talk to the DynDNS servers to make sure your **Host Name** will resolve to the correct IP address of your router.

#### Sweeeet! But How Do We Know It's Working? (Optional Reading)

In order to see if our **Host Name** is active and getting updated, we need a tool to see the router's external IP address and what IP address, if any, does our **Host Name** resolve to.

Fortunately, there is a utility website that does this: [Network-Tools.com](http://Network-Tools.com).

Your router's external IP address is displayed when the website first loads. The "Lookup" feature (make sure the radio button is selected) can be used to discover the resulting IP address of resolving **Host Name** or URL. To do this, type in your **Host Name** and click the "Go" button.

If the **Host Name** resolves to your router's external IP address, then is good. We now know that at least DynDNS has successfully registered and initialized the **Host Name**. However, we don't really know if the DVR is successfully talking to the DynDNS server until the external router IP does not match what the **Host Name** resolves to AND the DVR then updates the **Host Name** to make the two match.

To test that the DVR is properly communicating with the DynDNS server, do the following:

- 1.) Visit the DynDNS website and go to the Host Services Section: (you may have to login first).
- 2.) Click on your Host Name and change the last part of the IP address so that it now longer matches the router's external IP address. Save the change.
- 3.) Use the Network-Tools.com. website to verify that the Host Name and router IP address are out-of-synch.
- 4.) Let's see if the DVR will correct the problem. Restart the DVR or wait at least 5 minutes.
- 5.) Go back to Network-Tools.com. and see if the Host Name and router IP address are back to being the same.

Hopefully they are and we can now celebrate. Be patient though, sometimes the update process may take more time. If the DVR isn't correctly updating, then re-check your configuration setting in the last step. Be aware though that one likely cause may be that you have not correctly configured plain **DNS** on the DVR, which was step #1.

#### Disclaimer:

**Optiview USA** or any part of its company are no affiliated to and do not endorse any Dynamic DNS providers. There are a couple of Dynamic DNS providers listed and supported by the DVR software, but these companies are not, in any way or whatsoever, affiliated to Optiview. Optiview does not provide technical support for any issues encountered when dealing or using any of these Dynamic DNS providers.