Remote Access to HMI w/ Dynamic DNS

Contents

Introduction

This guide will go over the steps to setup a PLCnext controller and a hostname to access the HMI on the controller over the internet.

Requirements

- PLCnext Controller w/ program including HMI
- Internet connection

Objectives

- Create hostname
- Setup controller for remote access
- Configure router for port forwarding

1 – Create hostname

Since internet services charge for fixed IP addresses a DNS (Domain Name Service) service can be used to create a name (hostname) for your controller that redirects requests to the IP stored on the DNS services servers. In this example no-ip services will be used since you can get a hostname for free!

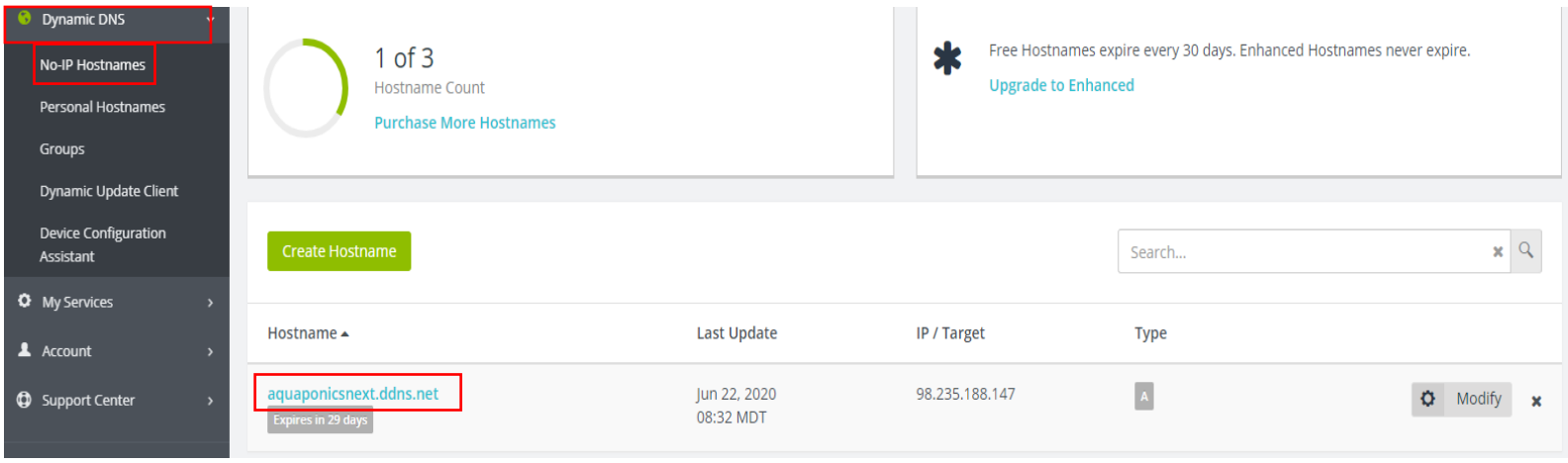
1. Go to no-ip and signup. https://www.noip.com/sign-up

2. In the signup form choose the hostname of your choice. In this example: aquaponicsnext.ddns.net

3. Once the form is completed scroll to the bottom and select “Free Sign Up”

4. This will create your hostname. Go to Dynamic DNS > No-IP Hostnames in the left pane to view your hostname.

Figure 1-1: Adding modules



6. And that’s it, leave everything at its default settings.

2 – Setting up the controller

To make sure no-ip is updated with your public IP address a client must be installed on the controller. NOTE: An internet connection is needed for this section.

1. First, login as root user and got to /opt/plcnext/

NOTE: If you haven't created a root user, visit plcnext-community.net to learn how.

```
su

cd /opt/plcnext/
```

2. Install the package manager, ipkg:

```
wget -O - http://ipkg.nslu2-linux.org/optware-ng/bootstrap/buildroot-armeabihf-bootstrap.sh | sh

export PATH=$PATH:/opt/bin:/opt/sbin
```

3. Install gcc:

```
ipkg install gcc
```

4. Install make

```
ipkg install make
```

Now the no-ip client can be installed

5. Create a directory for the client and move to it.

```
mkdir /opt/plcnext/noip

cd /opt/plcnext/noip
```

6. Download noip.

```
wget http://www.no-ip.com/client/linux/noip-duc-linux.tar.gz

tar vzxf noip-duc-linux.tar.gz
```

7. Install no-ip client. After "make install" you'll be prompted to login using your no-ip username & password. You'll also be asked about a script/program. Just select 'Y' and hit enter.

```
cd noip-<the_version_you_have_downloaded>

make install
```

8. Finally, Launch the service and verify the service is running!

```
/usr/local/bin/noip2

export PATH=$PATH: /usr/local/bin/noip2

noip2 --S
```

The output of noip2 –S will show your hostname and some other details about the service.

4 – Set up router

Now that the service is running the router will need setup for port forwarding. Every router is different so refer to the manual for this portion.

1. Login to the router's web page for managing settings, etc. Usually at IP addresses like 192.168.0.1 or 192.168.1.1, etc.

2. Once logged in navigate to the port forwarding section and add a new rule.

3. You'll notice a bunch of different fields, below are the meaning and what should be placed there.

- Internal Port: Port on the PLCnext controller that requests should be directed to. Since the HMI is what we'll be requesting the port is 443 by default.
- External Port: Port used to request home network, for simplicity use the same port as the internal port.
- Protocol: Set to ALL or TCP/UDP
- IP Address/Device: The IP address of the PLCnext Controller

4. Once the rule is created the router may need restarted for the settings to be changed.

5 – Accessing the HMI remotely

After successfully following steps 1-4 the HMI web page can be accessed from anywhere with an internet connection!

1. To test use a different internet connection or cellular device.

2. Using a browser of your choice enter the hostname for the webpage. In this case, aquaponicsnext.ddns.net and enjoy the remote access to your control system.