


Application Note

IP Change Notification (DDNS)

Version 1.8

 ***Caution: Contents of this document may be changed without prior notice for product improvement.***

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1 Overview

1.1 DNS (Domain Name System)

1.1.1 Overview

IP addresses are required for communication on the Internet but it is not easy to remember those addresses which are formed of numbers. Under this circumstance, DNS has been a great solution.

DNS is a service which allows a host to communicate with other hosts querying information of IP addresses and host names (hostnames) to a Name Server which has data.

1.1.2 Procedure of DNS

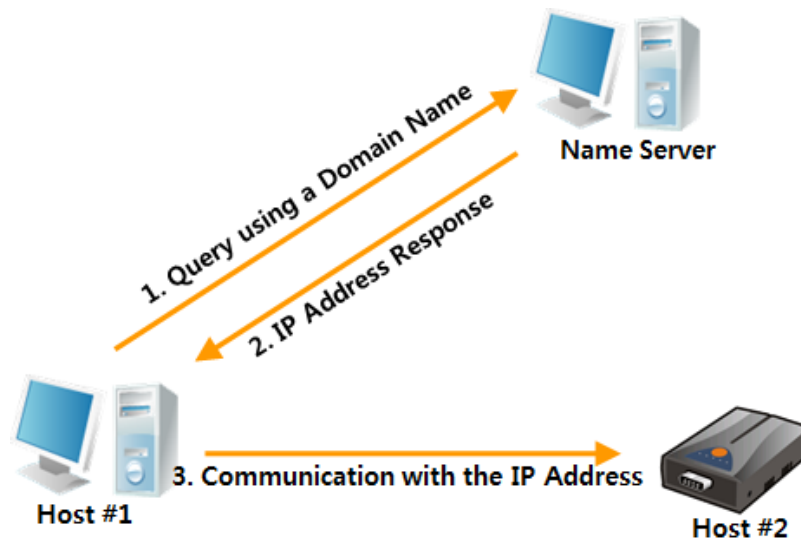


Figure 1-1 Procedure of the DNS

Host #1 who wants to communicate with Host#2 queries the equivalent IP address to the host name of Host#2 (e.g. www.sollae.co.kr) to a Name Server. After receiving information from the Name server, Host#1 can communicate with Host#2 with the IP address.

Thus, if Host#1 has the host name of Host#2, it can communicate with Host#2 on the Internet by using DNS.

1.2 DDNS (Dynamic DNS)

1.2.1 Overview

DDNS is a service which is used in Dynamic IP address environments.

1.2.2 Procedure of the DDNS

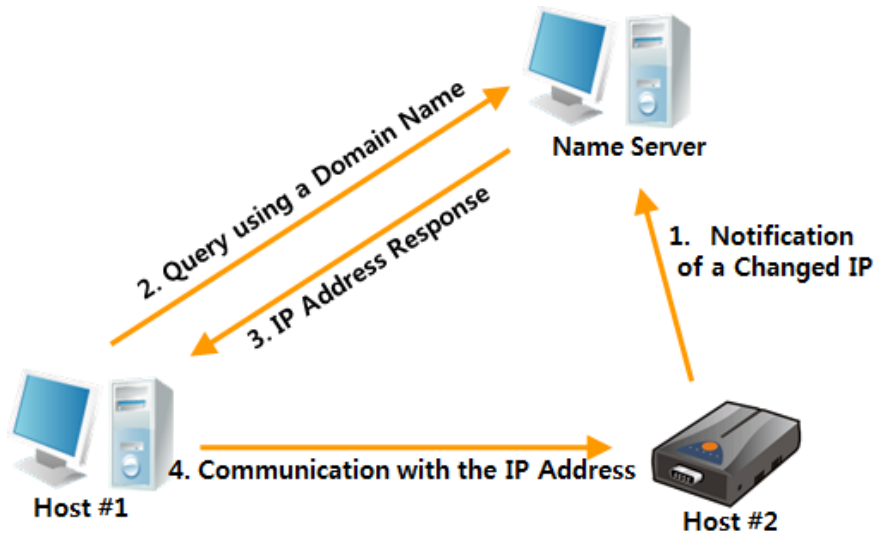


Figure 1-2 procedure of the DDNS

What is different from DNS is notifying the changed IP address to the Name server by Host#2. As a result, Host#1 can always reach to the Host#2 even if the IP address of Host#2 is changed.

1.3 Managing Dynamic IP addresses of ezTCP

There are three functions for managing changed IP addresses.

Service	Protocol	IP Trap	Note
DDNS	HTTP	HTTP	Service of Dyn
TCP	TCP	ASCII/HEX	Run a custom server
UDP	UDP	ASCII/HEX	Run a custom server

Table 1-1 functions of ezTCP

☞ *The functions may not be available on a few old products.*

2 DDNS

2.1 Overview

DDNS service of Dyn corp. is used for ezTCP DDNS function. Therefore, it sends data to a DNS server of Dyn with their format when their IP addresses are changed.

2.2 How to use

2.2.1 Create an Account of Dyn and Add a hostname

Create an account and add a hostname on the web site of Dyn. (<http://www.dyn.com>)

☞ *For more information on signing up for Dyn and creating a hostname, please visit the Dyn homepage.*

☞ *Please note that Dyn's terms of use of DDNS services may change at any time, subject to the circumstances of Dyn.*

2.2.2 Configuration of ezTCP

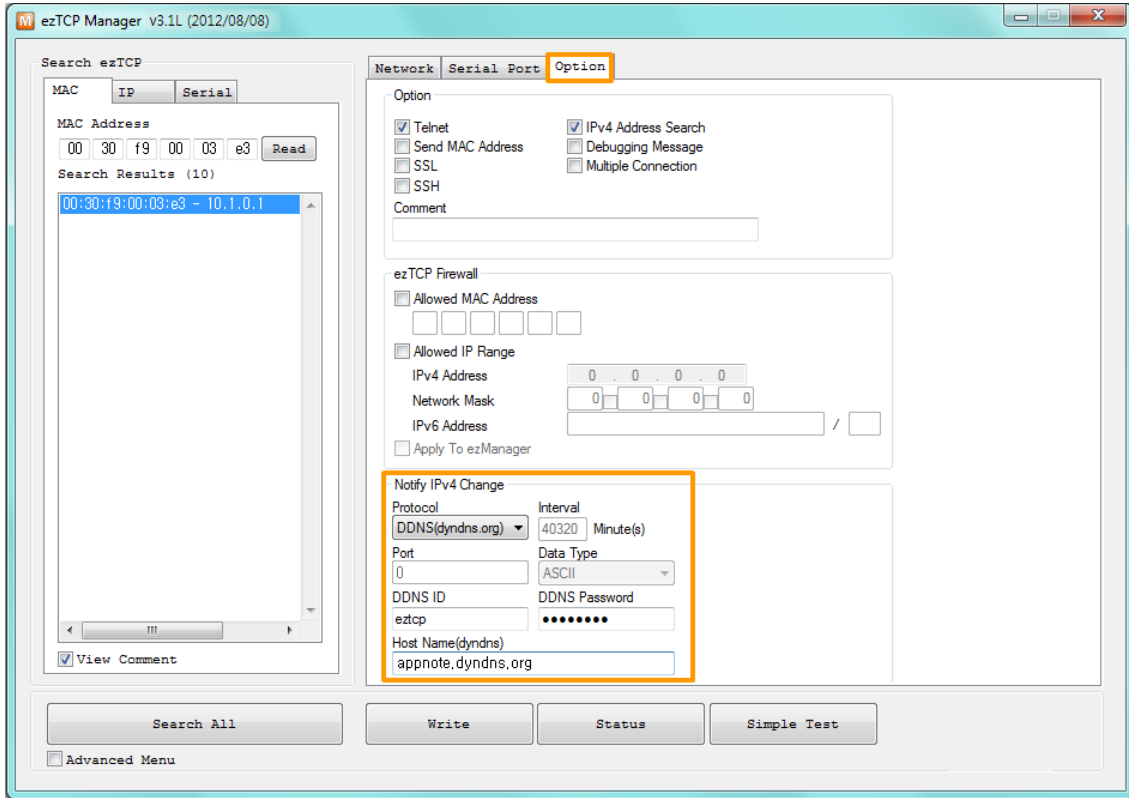


Figure 2-1 DDNS configuration of ezManager

Parameter	Value	Note
Protocol	DDNS(dyndns.org)	DDNS of Dyn
Interval	40320(fixed)	28 days
DDNS ID	e.g. eztcp	ID of Dyn account
DDNS Password	e.g. password	Password of Dyn account
Host Name	e.g. appnote.dyndns.org	Activated domain name

Table 2-1 DDNS parameters

2.2.3 Test Run

Check if the information is updated or not on the web site of Dyn. The service will work well if the information is listed on the table in figure below.

DDNS STATE
 UPDATE OK - good
 Hostname - appnote.dyndns.org
 Details - [REDACTED]
 Last Updated - Fri, 26 Oct 2012 08:04:29 GMT
 Last Uptime - 0 days / 00:00:07.15
 Next Uptime - 28 days / 00:00:07.15

DynDNS Pro and Host Services [↑ My Services](#)

DYNDNS HOSTNAMES + Add New Hostname			
HOSTNAME	SERVICE	DETAILS	LAST UPDATED
appnote.dyndns.org	Host	[REDACTED]	2012-10-26 5:04 PM

Figure 2-2 Test run by status window and web site of Dyn

☞ ***If ezTCP has a Private IP address, it check its outgoing Public IP address to Internet and use this Public IP address, instead of its own Private IP address.***

3 TCP / UDP

3.1 Overview

This option is for users who want to run an own management server for dynamic IP addresses environment. An ezTCP just sends information about MAC and IP address by selected protocol to the designed server. Thus, users are required to install and operate server program directly.

3.2 Configuration of ezTCP

An example for setting is the following.

Figure 3-1 example of configuration

Parameter	Value	Note
Protocol	TCP or UDP	Select a protocol for updating the information.
Interval	e.g. 10	Each data is sent with 10 minutes interval.
Port	14700	Port number for communication.
Host Name	e.g. user.userserver.com (or 192.168.0.100)	Type the domain name or IP address of the management server.
Data Type	ASCII or Hexadecimal	Select a data type

Table 3-1 example of configuration

☞ In the case of setting Interval to 0, ezTCP sends the changed IP address only when its IP address is changed.

3.3 ASCII mode

3.3.1 Data format of ASCII mode

In this mode, the data including the MAC and IP address is coded in ASCII. The format is as follows:

MAC Address	0x0d	0x0a
IP Address	0x0d	0x0a
Product Information	0x0d	0x0a
Comment	0x0d	0x0a

Figure 3-2 data format of ASCII mode

- MAC Address is composed to 6 bytes, and each byte separated with colon (:) in Hexadecimal.
- IP Address is composed to 4 bytes, and each byte separated with dot (.) in decimal.
- Product Information has the structure below:

Product ID (2byte)	Major Firmware Version (2byte)	Minor Firmware Version (2bytes)	Firmware Revision (2byte)
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Figure 3-3 structure of Product ID

- Comment represents the [Comment] field in environmental parameters. You can configure this parameter in the [Option] tab of ezManager.

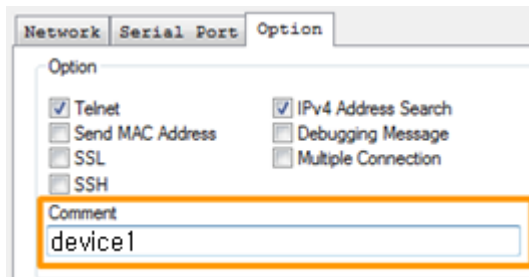


Figure 3-4 comment field

3.3.2 Exapmle

00:30:f9:00:00:01	0x0d	0x0a	192.168.1.50	0x0d	0x0a
15bytes (ezTCP MAC Address)	1byte	1byte	15bytes (ezTCP IP Address)	1byte	1byte
11010106	0x0d	0x0a	device1	0x0d	0x0a
8bytes (Product ID: 11, F/W ver. 1.1G)	1byte	1byte	7 bytes (Comment: device1)	1byte	1byte

Figure 3-5 an example of data structure in ASCII mode

ASCII	0	0	:	3	0	:	f	9	:	0	0	:	0	0	:	0
Hex	30	30	3a	33	30	3a	66	39	3a	30	30	3a	30	30	3a	30
	MAC Address 00:30:f9:00:00:01															

1	CR	LF	1	9	2	.	1	6	8	.	0	0	1	.	0
31	0d	0a	31	39	32	2e	31	36	38	2e	30	30	31	2e	30
	IP Address (1.2.3.4)														

5	0	CR	LF	1	1	0	1	0	1	0	6	CR	LF	d	e
35	30	0d	0a	31	31	30	31	30	31	30	36	0d	0a	64	65
				Product ID			Firmware Version							User	

v	i	c	e	1	CR	LF
76	69	63	65	31	0d	0a
Comment						

Figure 3-6 an example of data in ASCII mode

3.4 HEX mode

3.4.1 Hexadecimal mode

In this mode, the data including the MAC and IP address is coded in hexadecimal code. The format is as follows:

len	cm_len	Ethernet Address (6bytes)			
IP Address (4bytes)		p_id	major	minor	rev
Comment (variable length)					

Figure 3-7 data format of hexadecimal mode

Descriptions about each field are as follows:

Name	Length (byte)	Description
len	1	The length of data except for Comment field
cm_len	1	The length of Comment field
Ethernet Address	6	MAC Address
IP Address	4	IP Address
p_id	1	Product ID
major	1	Firmware Version (Major)
minor	1	Firmware Version (Minor)
rev	1	Firmware Version (Revision)
Comment	variable	Comment field in environmental parameters Null byte (0x00) is added in the end of the data.

Table 3-2 data fields of hexadecimal mode

3.4.2 Example

10	08	00	30	f9	00	00	01
len	cm_len	MAC Address (00:30:f9:00:00:01)					
c0	a8	01	32	11	01	01	06
IP Address (192.168.1.50)				p_id	Firmware version		
64	65	76	69	63	65	31	00
Comment 8bytes (device1 + NULL)							

Figure 3-8 an example of data in hexadecimal mode

4 History

Date	Version	Note	Author
2012.02.21	1.5	○ Initial Release	Roy LEE
2012.03.07	1.6	○ Correct some errors	Roy LEE
2012.10.29	1.7	○ Correct some errors ○ Add Public IP information for DDNS service ○ Modify example data of TCP/UDP	Andy LEE
2018.02.09.	1.8	○ remove contents about Dyn's homepage guide part ○ move positions of table captions: tob > bottom	Roy LEE