IPv4 Plus
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# IPv4+ The Extended Protocol Based On IPv4
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Abstract

This document specifies version 4+ of the Internet Protocol (IPv4+). IPv4 is very successful,simple and elegant. continuation and expansion of the IPv4 is necessary. Existing systems, devices only need to upgrade the software to support IPv4+, without the need to update new hardwares,saving investment costs. Ipv4+ is also an interstellar Protocol, so the Internet will evolve into a star Internet.

Status of this Memo

This memo provides information for the Internet community. Requests discussion and suggestions for improvements.

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## 1. Introduction

IPv4+ is an extended version of IPv4, 100% compatible with IPv4. IPv4+ expands the IPv4 IP addresses from 32-bit to 48-bit(v1) and 64-bit(v2), the investment in IPv4(softwares, hardwares, etc) is preserved. Everything you need to know is that IPv4+ added one "Door" for IPv4, and increase IP addresses via the "Door".

### 1.1. What is IPv4+

IPv4+ ="Door"+IPv4

### 1.2. What Is "Door"

Just like "calling codes", the role of "Door" is to expand IPv4 addresses. There is a standard IPv4 address block(2^32) behind every "Door". Opening different "Door", you can go to another world.

### 1.3. Addressing

IPv4+(v1) uses 48-bit addresses, which limits the address space to 281 474 976 710 656 (2^48) addresses, in other words,
IPv4+(v1) has 65536(2^16) doors.
IPv4+(v2) uses 64-bit addresses(2^64).
IPv4+(v2) is still under study.

### 1.4. "Door Address"

Each "Door" has a number, this number is called "Door Address".

### 1.5. Address representations

IPv4+ is written in the dot-decimal notation same as the IPv4.

### 1.6. How to Distinguish Between "Door Address" and "IPv4"

IPv4+ uses "|" to separate "Door Address" and "IPv4".

### 1.7. Format

xxx.xxx|xxx.xxx.xxx.xxx.xxx
For example 8.8|8.8.8.8

### 1.8. IP addresses types

IPv4+ IP addresses are divided into three categories by purpose: Generic IP, TV IP, Phone IP. (TV IP assigned for TV or TV boxes, Phone IP assigned for mobile phones and fixed telephones. Phone IP includes Mobile IP and  Fixed Telephone IP).

## 2. Features

1. IPv4+ and IPv4 are pure numbers, its advantage is that IP address can be used as a phone number.

2. IPv4+ can make a call by dialing an IP address to the whole solar system, and telecom users don't need phone number any more.

3. IPv4+ can be directly via IP address to achieve transfer, payments in the whole solar system.

4. IPv4+ can be directly via IP address to achieve Television Broadcast System in the whole solar system.

5. IPv4+ Assign IP addresses by geography, and assigned the IP address blocks to other planets in the universe: Artificial satellites, the Moon, Mars, etc.

Modern space technology is growing rapidly, It is necessary to achieve a unified telephone, transfer, payments in the whole solar system, and this day is not far away.

## 3. Advantages

Based on IPv4 Protocol and increase IP addresses.

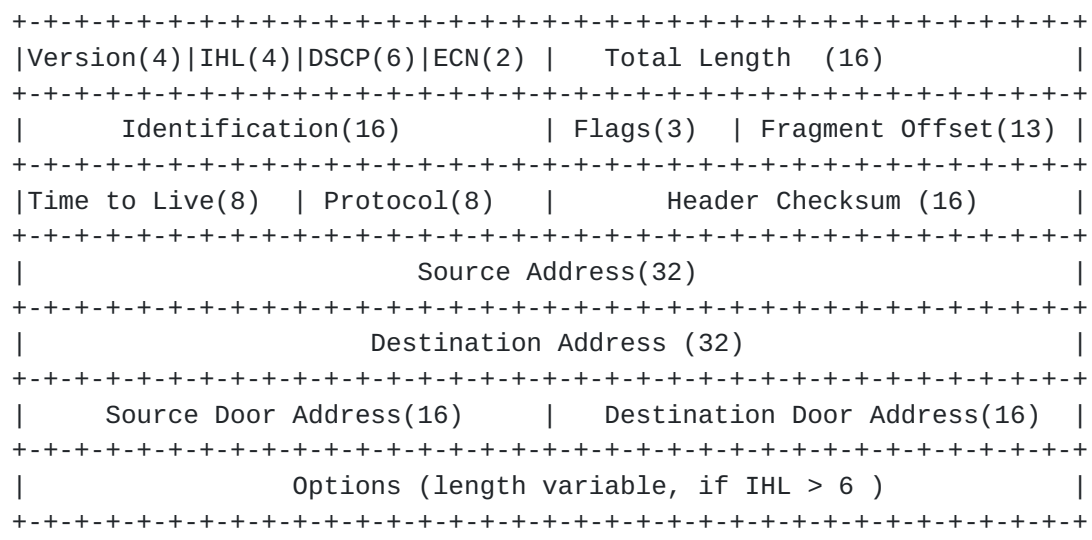
## 4. Disadvantages

Because IP addresses are assigned by geography, so some countries or regions will be too much IP addresses, and some countries or regions IP addresses will be insufficient, this can be solved by allocating more IP address blocks.

## 5. IPv4+ Packet Header Format and The Field Function

The IPv4 Header Format is defined in [RFC791], IPv4+ added "Source Door Address" and "Destination Door Address" in IPv4's Options field.

IPv4+ Header Format




1) The IPv4+ packet header consists of 16 fields, of which 15 are required. The IP header length is a minimum of 24 bytes and a maximum of 60 bytes.

2) If IHL=6, this means that this is IPv4+.

3) "Source Door Address"+"Source Address", "Destination Door Address"+"Destination Address" form a complete IPv4+ address.

4) "Door Address" does not need to use subnet mask or CIDR, so the minimum value for CIDR is 0, the maximum value is 32, not 48.

5) IPv4+(v1) only uses on the internet, private network continue using the IPv4 Private IP address.

6) Only 0.0|0.0.0.0/0----0.0|255.255.255.255/32 IP address block can assign Private IP address, loopback address.

## 6. Address Range

0.0|0.0.0.0/0----255.255|0.0.0.0/0

## 7. Address Allocation Table

This Address Allocation Table is for reference only.

0.0|0.0.0.0/0----15.255|0.0.0.0/0  Generic IP

0.0|0.0.0.0/0----0.0|255.255.255.255/32
That's the IPv4 address block we're using now.

0.1|0.0.0.0/0------0.255|0.0.0.0/0  Reserved

Assign IPv4+ Address by Geography

| | | |
|---|---|---|
| 1.0\|0.0.0.0/0 | Reserved | |
| 1.1\|0.0.0.0/0 | AD | Andorra |
| 1.2\|0.0.0.0/0 | AE | United Arab Em |
| 1.3\|0.0.0.0/0 | AF | Afghanistan |
| 1.4\|0.0.0.0/0 | AG | Antigua and Barbuda |
| 1.5\|0.0.0.0/0 | AI | Anguilla |
| 1.6\|0.0.0.0/0 | AL | Albania |
| 1.7\|0.0.0.0/0 | AM | Armenia |
| 1.8\|0.0.0.0/0 | AN | NETHERLANDS ANTILLES |
| 1.9\|0.0.0.0/0 | AO | Angola |
| 1.10\|0.0.0.0/0 | AR | Argentina |
| 1.11\|0.0.0.0/0 | AS | American Samoa |
| 1.12\|0.0.0.0/0 | AT | Austria |
| 1.13\|0.0.0.0/0 | AU | Australia |
| 1.14\|0.0.0.0/0 | AW | Aruba |
| 1.15\|0.0.0.0/0 | AZ | Azerbaijan |
| 1.16\|0.0.0.0/0 | BA | Bosnia |
| 1.17\|0.0.0.0/0 | BB | Barbados |
| 1.18\|0.0.0.0/0 | BD | Bangladesh |
| 1.19\|0.0.0.0/0 | BE | Belgium |
| 1.20\|0.0.0.0/0 | BF | Burkina Faso |

```
    1.21|0.0.0.0/0        BG  Bulgaria
    1.22|0.0.0.0/0        BH  Bahrain
    1.23|0.0.0.0/0        BI  Burundi
    1.24|0.0.0.0/0        BJ  Benin
    1.25|0.0.0.0/0        BL  Saint Barthelemy
    1.26|0.0.0.0/0        BM  Bermuda
    1.27|0.0.0.0/0        BN  Brunei
    1.28|0.0.0.0/0        BO  Bolivia
    1.29|0.0.0.0/0        BQ  Bonaire Sint Eustatius
                              Saba
    1.30|0.0.0.0/0        BR  Brazil
    1.31|0.0.0.0/0        BS  Bahamas
    1.32|0.0.0.0/0        BT  Bhutan
    1.33|0.0.0.0/0        BV  Bouvet Island
    1.34|0.0.0.0/0        BW  Botswana
    1.35|0.0.0.0/0        BY  Belarus
    1.36|0.0.0.0/0        BZ  Belize
    1.37|0.0.0.0/0        CA  Canada
    1.38|0.0.0.0/0        CC  Cocos (Keeling)
                              Islands
    1.39|0.0.0.0/0        CD  The Democratic
                              Republic of the Congo
    1.40|0.0.0.0/0        CF  Central African
                              Republic
    1.41|0.0.0.0/0        CG  Congo
    1.42|0.0.0.0/0        CH  Switzerland
    1.43|0.0.0.0/0        CI  Cote d'Ivoire
    1.44|0.0.0.0/0        CK  Cook Islands
    1.45|0.0.0.0/0        CL  Chile
    1.46|0.0.0.0/0        CM  Cameroon
    1.47|0.0.0.0/0        CN  China (including Taiwan,
                              Hongkon,Macao)
    1.48|0.0.0.0/0        CO  Colombia
    1.49|0.0.0.0/0        CR  Costa Rica
    1.50|0.0.0.0/0        CU  Cuba
    1.51|0.0.0.0/0        CV  Cape Verde
    1.52|0.0.0.0/0        CW  Curacao
    1.53|0.0.0.0/0        CX  Christmas Island
    1.54|0.0.0.0/0        CY  Cyprus
    1.55|0.0.0.0/0        CZ  Czech
    1.56|0.0.0.0/0        DE  Germany
    1.57|0.0.0.0/0        DJ  Djibouti
    1.58|0.0.0.0/0        DK  Denmark
    1.59|0.0.0.0/0        DM  Dominica
    1.60|0.0.0/0.0        DO  Dominican Rep
```

```
    1.61|0.0.0.0/0        DZ  Algeria
    1.62|0.0.0.0/0        EC  Ecuador
    1.63|0.0.0.0/0        EE  Estonia
    1.64|0.0.0.0/0        EG  Egypt
    1.65|0.0.0.0/0        EH  Western Sahara
    1.66|0.0.0.0/0        ER  Eritrea
    1.67|0.0.0.0/0        ES  Spain
    1.68|0.0.0.0/0        ET  Ethiopia
    1.69|0.0.0.0/0        EU  EU
    1.70|0.0.0.0/0        FI  Finland
    1.71|0.0.0.0/0        FJ  Fiji
    1.72|0.0.0.0/0        FK  Falkland Islands
                              (Malvinas)
    1.73|0.0.0.0/0        FM  Federated States of
                              Micronesia
    1.74|0.0.0.0/0        FO  Faroe Islands
    1.75|0.0.0.0/0        FR  France
    1.76|0.0.0.0/0        GA  Gabon
    1.77|0.0.0.0/0        GB  Great Britain
    1.78|0.0.0.0/0        GD  Grenada
    1.79|0.0.0.0/0        GE  Georgia
    1.80|0.0.0/0.0        GF  French Guiana
    1.81|0.0.0.0/0        GG  Guernsey
    1.82|0.0.0.0/0        GH  Ghana
    1.83|0.0.0.0/0        GI  Gibraltar
    1.84|0.0.0.0/0        GL  Greenland
    1.85|0.0.0.0/0        GM  Gambia
    1.86|0.0.0.0/0        GN  Guinea
    1.87|0.0.0.0/0        GP  Guadeloupe
    1.88|0.0.0.0/0        GQ  Equatorial Guinea
    1.89|0.0.0.0/0        GR  Greece
    1.90|0.0.0.0/0        GS  South Georgia and
                              the Islands
    1.91|0.0.0.0/0        GT  Guatemala
    1.92|0.0.0.0/0        GU  Guam
    1.93|0.0.0.0/0        GW  Guinea-Bissau
    1.94|0.0.0.0/0        GY  Guyana
    1.95|0.0.0.0/0        HK  Hong Kong, China
    1.96|0.0.0.0/0        HM  Heard Island and
                              McDonald Islands
    1.97|0.0.0.0/0        HN  Honduras
    1.98|0.0.0.0/0        HR  Croatia
    1.99|0.0.0.0/0        HT  Haiti
    1.100|0.0.0.0/0       HU  Hungary
```

```
    1.101|0.0.0.0/0      ID  Indonesia
    1.102|0.0.0.0/0      IE  Ireland
    1.103|0.0.0.0/0      IL  Israel
    1.104|0.0.0.0/0      IN  India
    1.105|0.0.0.0/0      IO  British Indian
                             Ocean Territory
    1.106|0.0.0.0/0      IQ  Iraq
    1.107|0.0.0.0/0      IR  Iran
    1.108|0.0.0.0/0      IS  Iceland
    1.109|0.0.0.0/0      IT  Italy
    1.110|0.0.0.0/0      JM  Jamaica
    1.111|0.0.0.0/0      JO  Jordan
    1.112|0.0.0.0/0      JP  Japan
    1.113|0.0.0.0/0      KE  Kenya
    1.114|0.0.0.0/0      KG  Kyrgyzstan
    1.115|0.0.0.0/0      KH  Cambodia
    1.116|0.0.0.0/0      KI  Kiribati
    1.117|0.0.0.0/0      KM  Comoros
    1.118|0.0.0.0/0      KN  Saint Kitts and Nevis
    1.119|0.0.0.0/0      KP  Democratic People's
                             Republic of Korea
    1.120|0.0.0.0/0      KR  South Korea
    1.121|0.0.0.0/0      KV  Kosovo
    1.122|0.0.0.0/0      KW  Kuwait
    1.123|0.0.0.0/0      KY  Cayman Islands
    1.124|0.0.0.0/0      KZ  Kazakhstan
    1.125|0.0.0.0/0      LA  Laos
    1.126|0.0.0.0/0      LB  Lebanon
    1.127|0.0.0.0/0      LC  Saint Lucia
    1.128|0.0.0.0/0      LI  Liechtenstein
    1.129|0.0.0.0/0      LK  Sri Lanka
    1.130|0.0.0.0/0      LR  Liberia
    1.131|0.0.0.0/0      LS  Lesotho
    1.132|0.0.0.0/0      LT  Lithuania
    1.133|0.0.0.0/0      LU  Luxembourg
    1.134|0.0.0.0/0      LV  Latvia
    1.135|0.0.0.0/0      LY  Libya
    1.136|0.0.0.0/0      MA  Morocco
    1.137|0.0.0.0/0      MC  Monaco
    1.138|0.0.0.0/0      MD  Republic of Moldova
    1.139|0.0.0.0/0      ME  Montenegro
    1.140|0.0.0.0/0      MG  Madagascar
```

```
    1.141|0.0.0.0/0      MH  Marshall Islands
    1.142|0.0.0.0/0      MK  Republic of Macedonia
    1.143|0.0.0.0/0      ML  Mali
    1.144|0.0.0.0/0      MM  Myanmar
    1.145|0.0.0.0/0      MN  Mongolia
    1.146|0.0.0.0/0      MO  Macao, China
    1.147|0.0.0.0/0      MP  Northern Mariana
                             Islands
    1.148|0.0.0.0/0      MQ  Martinique
    1.149|0.0.0.0/0      MR  Mauritania
    1.150|0.0.0.0/0      MS  Montserrat
    1.151|0.0.0.0/0      MT  Malta
    1.152|0.0.0.0/0      MU  Mauritius
    1.153|0.0.0.0/0      MV  Maldives
    1.154|0.0.0.0/0      MW  Malawi
    1.155|0.0.0.0/0      MX  Mexico
    1.156|0.0.0.0/0      MY  Malaysia
    1.157|0.0.0.0/0      MZ  Mozambique
    1.158|0.0.0.0/0      NA  Namibia
    1.159|0.0.0.0/0      NC  New Caledonia
    1.160|0.0.0.0/0      NE  Niger
    1.161|0.0.0.0/0      NF  Norfolk Island
    1.162|0.0.0.0/0      NG  Nigeria
    1.163|0.0.0.0/0      NI  Nicaragua
    1.164|0.0.0.0/0      NL  Netherlands
    1.165|0.0.0.0/0      NO  Norway
    1.166|0.0.0.0/0      NP  Nepal
    1.167|0.0.0.0/0      NR  Nauru
    1.168|0.0.0.0/0      NU  Niue
    1.169|0.0.0.0/0      NZ  New Zealand
    1.170|0.0.0.0/0      OM  Oman
    1.171|0.0.0.0/0      PA  Panama
    1.172|0.0.0.0/0      PE  Peru
    1.173|0.0.0.0/0      PF  French Polynesia
    1.174|0.0.0.0/0      PG  Papua New Guinea
    1.175|0.0.0.0/0      PH  Philippines
    1.176|0.0.0.0/0      PK  Pakistan
    1.177|0.0.0.0/0      PL  Poland
    1.178|0.0.0.0/0      PM  Saint Pierre
                             and Miquelon
    1.179|0.0.0.0/0      PN  Pitcairn
    1.180|0.0.0.0/0      PR  Puerto Rico
```

```
    1.181|0.0.0.0/0      PS  Gaza StrIP
    1.182|0.0.0.0/0      PT  Portugal
    1.183|0.0.0.0/0      PW  Palau
    1.184|0.0.0.0/0      PY  Paraguay
    1.185|0.0.0.0/0      QA  Qatar
    1.186|0.0.0.0/0      RE  Reunion
    1.187|0.0.0.0/0      RO  Romania
    1.188|0.0.0.0/0      RS  Serbia
    1.189|0.0.0.0/0      RU  Russia
    1.190|0.0.0.0/0      RW  Rwanda
    1.191|0.0.0.0/0      SA  Saudi Arabia
    1.192|0.0.0.0/0      SB  Solomon Islands
    1.193|0.0.0.0/0      SC  Seychelles
    1.194|0.0.0.0/0      SD  Sudan
    1.195|0.0.0.0/0      SE  Sweden
    1.196|0.0.0.0/0      SG  Singapore
    1.197|0.0.0.0/0      SH  Saint Helena,Ascension
                             and Tristan Da Cunha
    1.198|0.0.0.0/0      SI  Slovenia
    1.199|0.0.0.0/0      SJ  Svalbard
    1.200|0.0.0.0/0      SK  Slovakia
    1.201|0.0.0.0/0      SL  Sierra Leone
    1.202|0.0.0.0/0      SM  San Marino
    1.203|0.0.0.0/0      SN  Senegal
    1.204|0.0.0.0/0      SO  Somalia
    1.205|0.0.0.0/0      SR  Suriname
    1.206|0.0.0.0/0      SS  South Sudan
    1.207|0.0.0.0/0      ST  Sao Tome and Principe
    1.208|0.0.0.0/0      SV  El Salvador
    1.209|0.0.0.0/0      SX  Sint Maarten
    1.210|0.0.0.0/0      SY  Syrian Arab Republic
    1.211|0.0.0.0/0      SZ  Swaziland
    1.212|0.0.0.0/0      TC  Turks and Caicos
                             Islands
    1.213|0.0.0.0/0      TD  Chad
    1.214|0.0.0.0/0      TG  Togo
    1.215|0.0.0.0/0      TH  Thailand
    1.216|0.0.0.0/0      TJ  Tajikistan
    1.217|0.0.0.0/0      TK  Tokelau
    1.218|0.0.0.0/0      TL  East Timor
    1.219|0.0.0.0/0      TM  Turkmenistan
    1.220|0.0.0.0/0      TN  Tunisia
```

```
    1.221|0.0.0.0/0      TO  Tonga
    1.222|0.0.0.0/0      TR  Turkey
    1.223|0.0.0.0/0      TT  Trinidad and Tobago
    1.224|0.0.0.0/0      TV  Tuvalu
    1.225|0.0.0.0/0      TW  Taiwan, China
    1.226|0.0.0.0/0      TZ  United Republic of
                             Tanzania
    1.227|0.0.0.0/0      UA  Ukraine
    1.228|0.0.0.0/0      UG  Uganda
    1.229|0.0.0.0/0      UM  United States Minor
                             Outlying Islands
    1.230|0.0.0.0/0      US  USA
    1.231|0.0.0.0/0      UY  Uruguay
    1.232|0.0.0.0/0      UZ  Uzbekistan
    1.233|0.0.0.0/0      VA  Vatican City State
    1.234|0.0.0.0/0      VC  Saint Vincent and the
                             Grenadines
    1.235|0.0.0.0/0      VE  Venezuela
    1.236|0.0.0.0/0      VG  British Virgin lslands
    1.237|0.0.0.0/0      VI  Virgin Islands
    1.238|0.0.0.0/0      VN  Vietnam
    1.239|0.0.0.0/0      VU  Vanuatu
    1.240|0.0.0.0/0      WF  Wallis and Futuna
    1.241|0.0.0.0/0      WS  Samoa
    1.242|0.0.0.0/0      YE  Yemen
    1.243|0.0.0.0/0      YT  Mayotte
    1.244|0.0.0.0/0      ZA  South Africa
    1.245|0.0.0.0/0      ZM  Zambia
    1.246|0.0.0.0/0      ZW  Zimbabwe
    1.247|0.0.0.0/0----1.249|0.0.0.0/0      Unused
    1.250|0.0.0.0/0      Artificial satellites
    1.251|0.0.0.0/0      The Moon
    1.252|0.0.0.0/0      Mars
    1.253|0.0.0.0/0----1.255|0.0.0.0/0      Unused

    2.0|0.0.0.0/0----15.255|0.0.0.0/0     unused

    16.0|0.0.0.0/0-----31.255|0.0.0.0/0     Phone  IP
    (16.0|0.0.0.0/0----23.255|0.0.0.0/0)    Mobile IP
    (24.0|0.0.0.0/0----31.255|0.0.0.0/0)    Fixed Telephone IP

    32.0|0.0.0.0/0----47.255|0.0.0.0/0      TV IP

    (The Address Allocation Table of Phone IP and
    TV IP refer to Generic IP)

    48.0|0.0.0.0/0----255.255|0.0.0.0/0    Unassigned
```

## 8. Security Considerations

Security issues are not discussed in this memo.

## 9. IANA Considerations

The IPV4+ address block is allocated by IANA.

## 10. Informative References

[RFC791] Postel, J., "Internet Protocol",
STD 5, RFC 791, DOI 10.17487/RFC0791,
September 1981, <https://www.rfc-editor.org/info/rfc791>.

## 11. Conclusions

In addition to adding a "Door" to increse Ip addresses,
IPv4+ did not change any rules of the IPv4.
Each IPv4+ network user will have their personal IP addresses.

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