



Aspetti tecnici di Internet: RFC e IETF

Antonio Prado

Internet per tutti
a scuola con



Internet Society
Italy Chapter

SAB
22
MAGGIO

DALLE ORE
17.00

http://www.italia.it

Perché in questi indirizzi ci sono i segni
di due punti e due barre?

nome@italia.it

Dove è scritto che negli indirizzi di posta elettronica si debba usare la chiocciola?

Vi siete mai chiesti a
cosa serva e come
funzioni il DNS?

Il contesto

- *Cyberspazio*
- *Internet e Governance*

Cyberspazio

Lo “spazio cibernetico” rappresenta un **nuovo dominio operativo** di natura artificiale, trasversale agli altri quattro domini tradizionali (dominio terrestre, dominio aereo, dominio marittimo, dominio spaziale), nel quale gli esseri umani, e nel prossimo futuro verosimilmente anche le intelligenze artificiali, possono agire e interagire a distanza.



Cfr. D.L. 105/2019 “Disposizioni urgenti in materia di perimetro di sicurezza nazionale cibernetica”

Cyberspazio

I tre strati di **Martin Libicki** (studioso di cibernsicurezza)

Fisico: costituito dalle componenti fisiche del cyberspazio (cavi sottomarini, antenne, satelliti e fibre ottiche ecc.);

Sintattico: costituito dai protocolli, le regole e le proprietà naturali che governano il funzionamento e l'interazione tra le diverse componenti fisiche del cyberspazio;

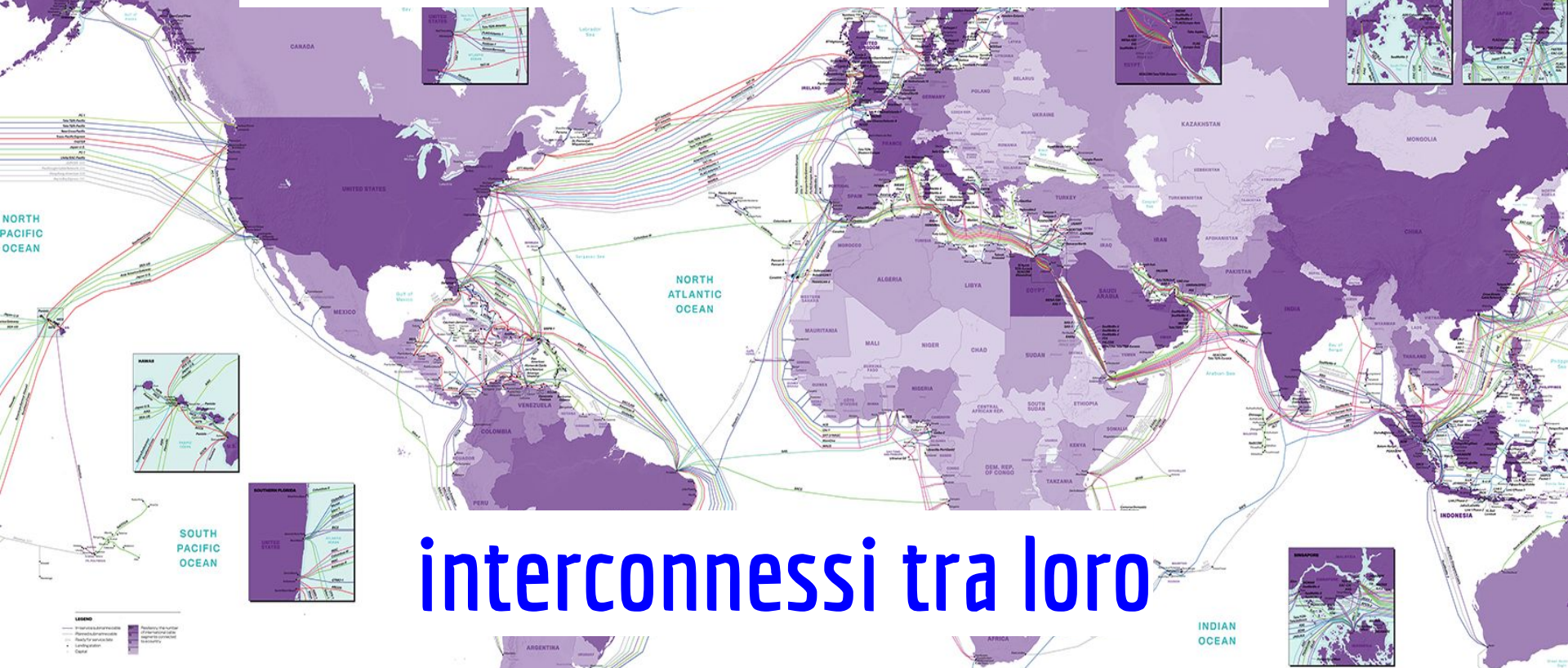
Semantico: risultato dell'interazione dei primi due livelli è quello che dà un senso, assicurando la funzionalità e un significato ai processi dei livelli sottostanti.

Dalla *vulgata* comune, Internet viene spesso definito come un luogo di relazioni virtuali, una nuvola fuori dalla realtà, nella quale ci si incontra e scontra quotidianamente, senza necessariamente condividere lo stesso spazio fisico e talvolta nemmeno lo stesso tempo. In realtà, Internet è uno strumento molto reale, rappresenta la *“sede della dimensione immateriale del mondo che, nel XXI secolo, è la maggiore base delle relazioni sociali ed economiche delle persone e delle aziende”*

[COMMISSIONE PARLAMENTARE DI INCHIESTA SUL LIVELLO DI DIGITALIZZAZIONE E INNOVAZIONE DELLE PUBBLICHE AMMINISTRAZIONI E SUGLI INVESTIMENTI COMPLESSIVI RIGUARDANTI IL SETTORE DELLE TECNOLOGIE E DELLA COMUNICAZIONE - Relazione dal titolo “La digitalizzazione nella pubblica amministrazione italiana: analisi degli errori e valutazione delle priorità, dall’efficacia degli strumenti all’importanza del capitale umano” (Relatrice: on. Vincenza BRUNO BOSSIO) Approvata dalla Commissione nella seduta del 26 ottobre 2017]

Cos’è Internet?

Un insieme di sistemi autonomi



interconnessi tra loro

The CAIDA AS Core visualization depicts the Internet's Autonomous Systems' (ASes) geographic locations, number of customers, and interconnections. Each AS approximately corresponds to an Internet Service Provider (ISP). The geographic location of the individual AS is inferred from the weighted centroid of its address space according to NetAcuity, a commercial geolocation service. The number of direct or indirect customers of an ASA is inferred using its *customer cone* (described below).

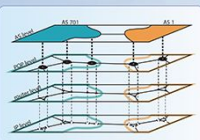
For this visualization we used the Feb 2017 Internet Topology Data Kit (ITDK). We obtained the raw IPv4 topology data for the ITDK by performing traceroutes to randomly-chosen destinations in each route /24 BGP prefix using 121 AR monitors located in 42 countries, on Jan 22 to Feb 7, 2017. The resulting IP topology contained almost 50 million IP addresses, 49 million inferred routes, and 36 million inferred links. We inferred the IP address to AS mappings using *bordermapit*, a tool for inferring router ownership (a collaboration between CAIDA and UPenn). The resulting AS topology contained 47,610 ASes and 148,455 links.

Each AS node is plotted in polar coordinates (radius, angle) on the circle, as formally defined in the equations below. The distance of each AS node from the center of the circle (the radial coordinate) is the inverse of each AS's customer cone size, (roughly) the number of the AS's direct or indirect customers. ASes at the outer edge of the circle have no customers and ASes at the center have the largest number of customers. The angular coordinate indicates the AS's geographic longitude.

$$\text{radius} = 1 - \log \left(\frac{\text{transit degree(AS)} + 1}{\text{maximum transit degree} + 1} \right)$$
$$\text{angle} = \left(\frac{\text{longitude of the AS's BGP prefixes in Netacuity}}{\text{maximum longitude of the AS's BGP prefixes in Netacuity}} \right)$$

The core of this topology, the set of ASes with the largest customer cones, is still dominated by U.S.-centric ASes.

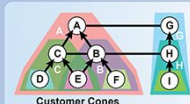
The Internet's network topology is often divided into four layers: AS, PoP, Router, and IP. The IP address uniquely identifies an attachment point (interface) of a device on the Internet. The router layer refers to the set of routers that transfer and route traffic. To support aggregate routers into PoP networks) topology analysis Systems (ASes).



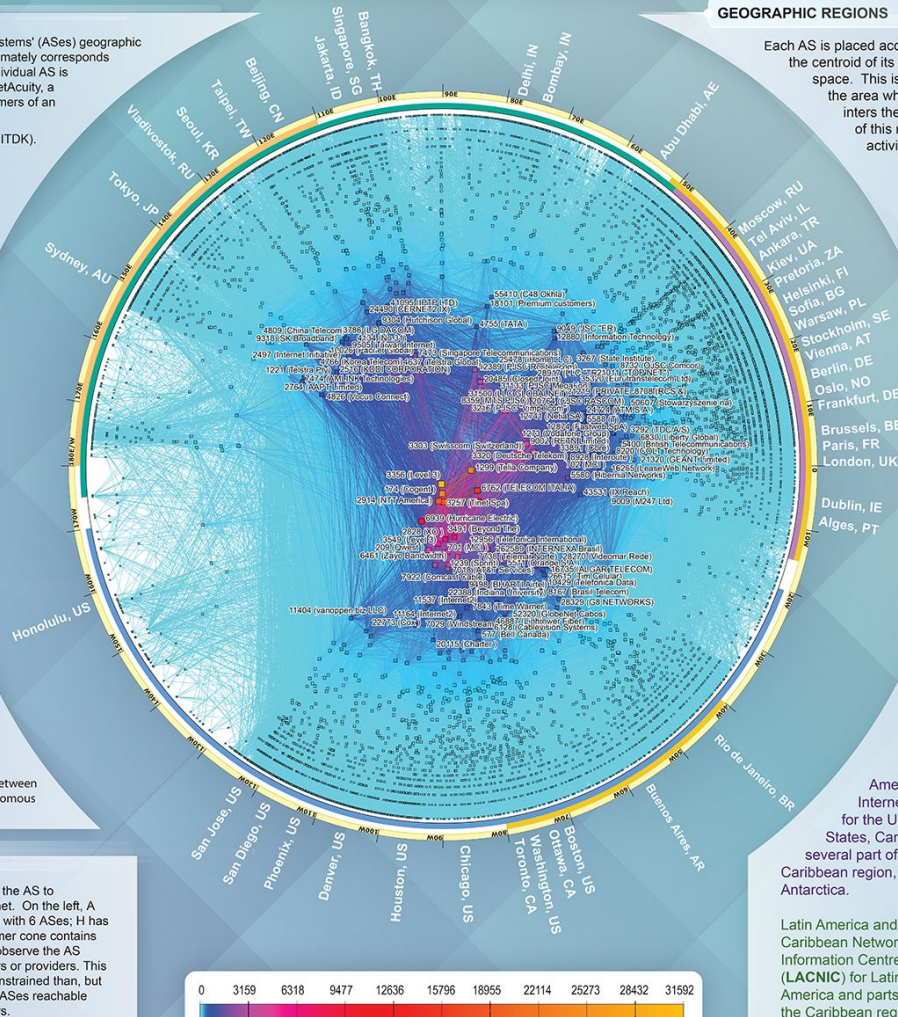
route traffic. To support geophysically-aware topology analysis, we aggregate routers into Points of Presence (PoPs). To support interdomain (between networks) topology analysis, we aggregate routers by ownership into Autonomous Systems (ASes).

The AS's customer cone is the set of ASes that directly or indirectly pay the AS to

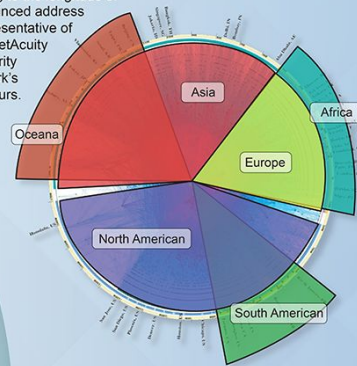
AS	Size
A	6
B	3
D	1



connect to the Internet. On the left, A has the largest cone with 6 ASes; H has two. An AS's customer cone contains the set of ASes we observe the AS announce to its peers or providers. This definition is more constrained than, but similar to, the set of ASes reachable through its customers.

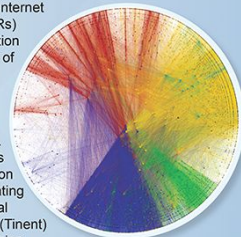


Each AS is placed according to the longitude of the centroid of its announced address space. This is representative of the area where NetAcuity enters the majority of this network's activity occurs.



REGIONAL INTERNET REGISTRIES

The Regional Internet Registries (RIRs) manage allocation and registration of Internet number resources, such as AS numbers, within a particular region of the world. Although most ASes geolocate to the region of the originally allocating RIR, some multinational networks, e.g., AS3257 (Tinet) geolocate outside their region.



American
Internet Nu
for the United
States, Canada,
several part of the
Caribbean region, and
Antarctica.

RIPE NCC
for Europe,
Russia, the
Middle East,
and Central Asia

Latin America and Caribbean Network Information Centre (LACNIC) for Latin America and parts of the Caribbean region

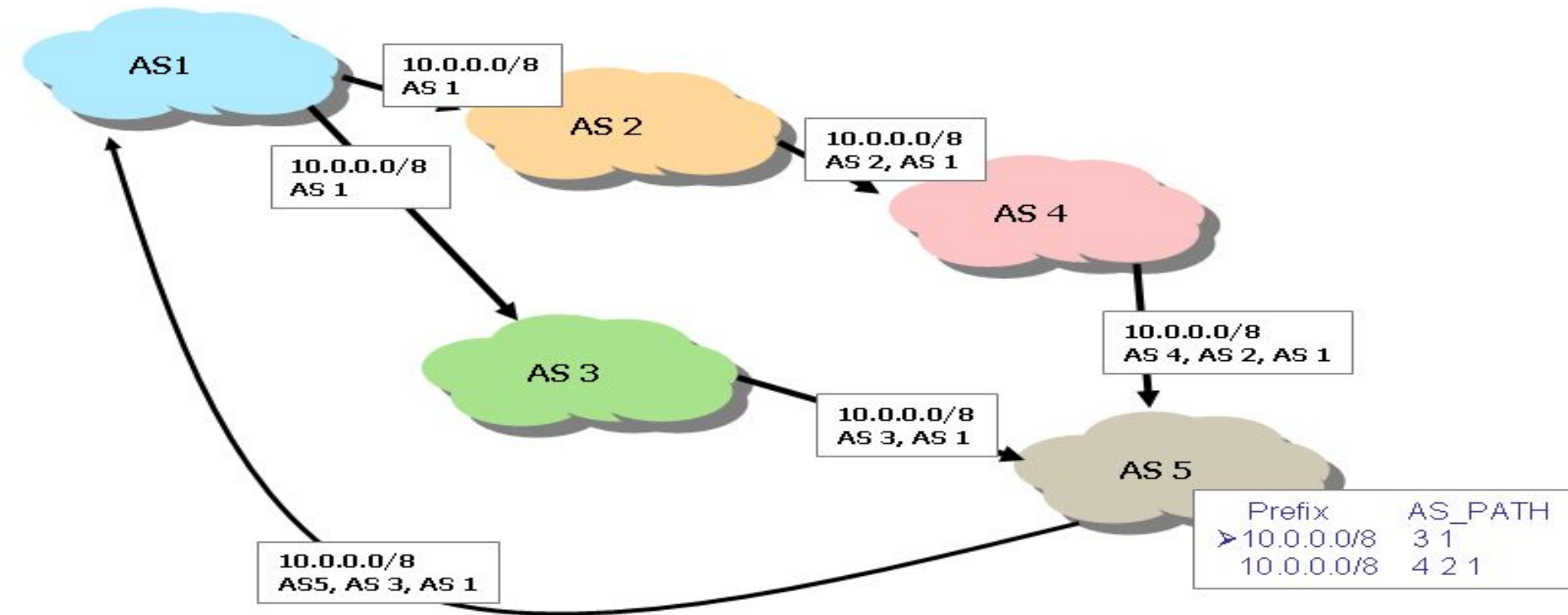
C Asia-Pacific Network Information Centre (APNIC) for Asia, Australia, New Zealand, and neighboring countries



African Network Information Center (**AFRINIC**) for Africa

New Zealand, and neighboring countries

An AS is a connected group of one or more IP prefixes run by one or more network operators which has a SINGLE and CLEARLY DEFINED routing policy. [[RFC 1930](#)]



TUNIS AGENDA FOR THE INFORMATION SOCIETY

18 novembre 2005

34. Una buona definizione per Internet governance è lo sviluppo e l'applicazione da parte dei governi, del settore privato e della società civile, ciascuno nel proprio ruolo, di principi condivisi, norme, regole, procedure per assumere decisioni e programmi che plasmino l'evoluzione e l'uso di Internet. *[t.d.a]*



General Assembly

Distr.: General
1 February 2016

Seventieth session
Agenda item 17

Resolution adopted by the General Assembly on 16 December 2015

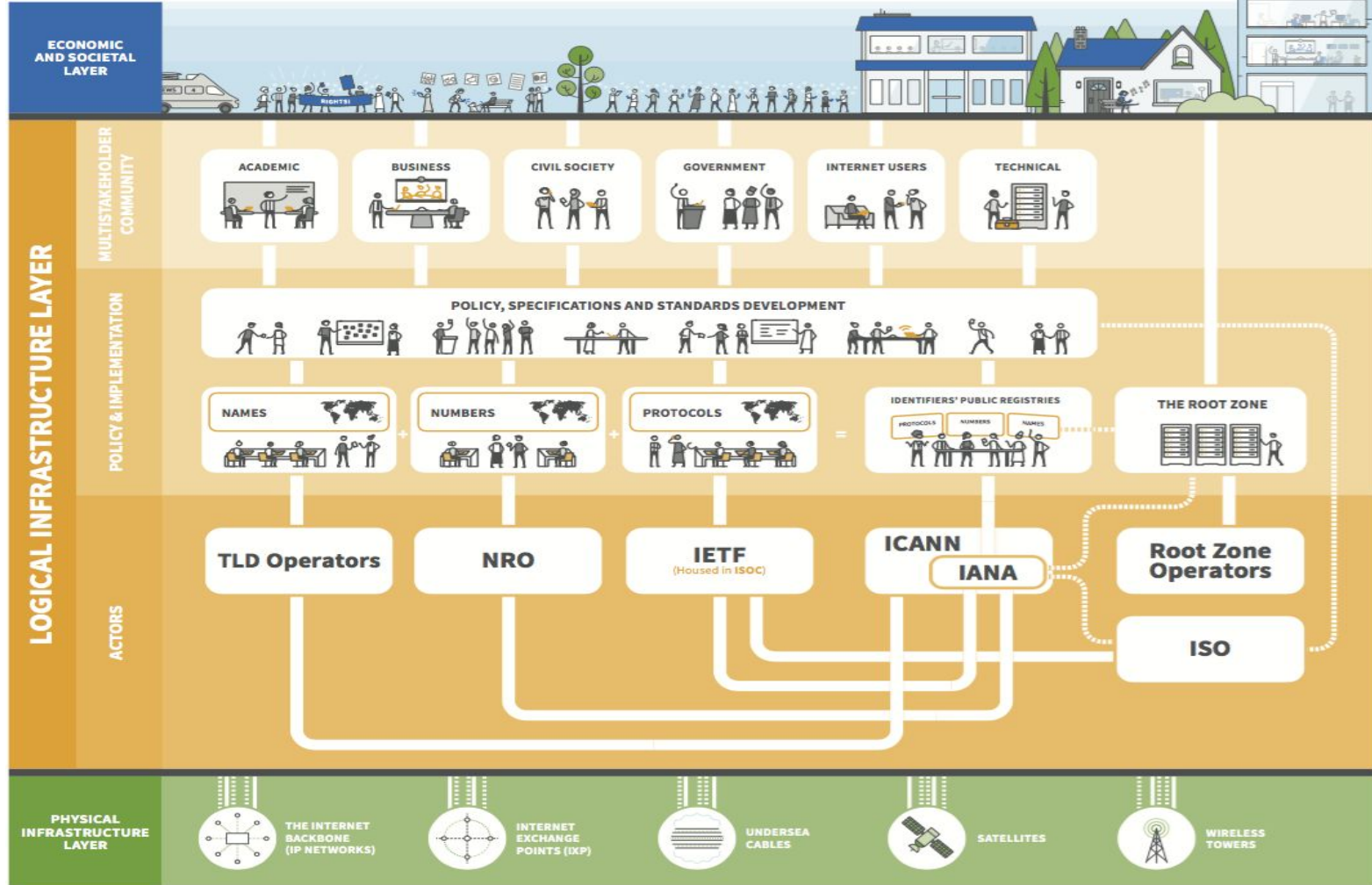
[without reference to a Main Committee (A/70/L.33)]

70/125. Outcome document of the high-level meeting of the General Assembly on the overall review of the implementation of the outcomes of the World Summit on the Information Society

The General Assembly

Adopts the following outcome document of the high-level meeting of the General Assembly on the overall review of the implementation of the outcomes of the World Summit on the Information Society at its seventieth session:

source



Internet Governance

US Department of Commerce

NTIA: National Telecommunications and Information Administration

ICANN: Internet Corporation for Assigned Names and Numbers

IANA: Internet Assigned Numbers Authority

ISOC: Internet Society

IAB: Internet Architecture Board

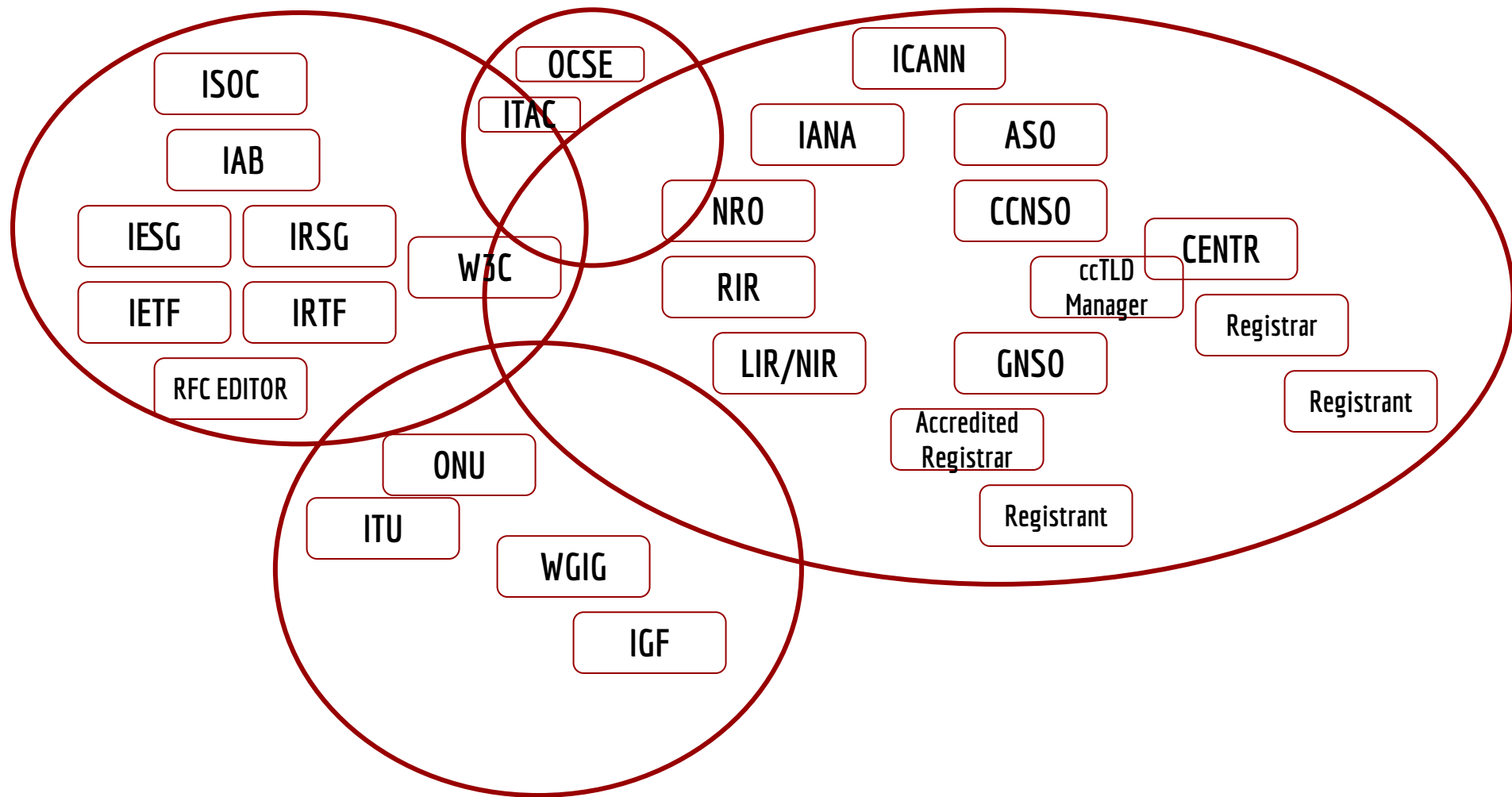
IESG: Internet Engineering Steering Group

IETF: Internet Engineering Task Force ([meeting 110](#))

IRSG: Internet Research Steering Group

IRTF: Internet Research Task Force



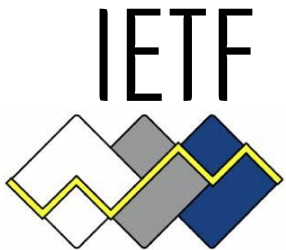


IETF e RFC

- *Cos'è?*
- *Un po' di storia*
- *La gerarchia*
- *Mailing list*
- *Meeting*
- *Working group*
- *BOF*
- *Internet-Draft e RFC*
- *Brevetti e standard*
- *Come contribuire*
- *I tempi di IETF*



Alissa Cooper- Presidente



Internet Area (int)

int Area Directors (ADs)

- [✉ Erik Kline](#)
- [✉ Éric Vyncke](#)

int area-specific web pages

- [Issuer Tracker](#)
- [Wiki](#)

int active WGs (17)

Group	✦ Responsible AD	✦ Name	✦ Chairs
6lo	✉ Erik	IPv6 over Networks of Resource-constrained Nodes	Shwetha Bhandari ✉, Carles Gomez ✉
6man	✉ Erik	IPv6 Maintenance	Bob Hinden ✉, Ole Trøan ✉
6tisch	✉ Erik	IPv6 over the TSCH mode of IEEE 802.15.4e	Pascal Thubert ✉, Thomas Watteyne ✉
add	✉ Barry	Adaptive DNS Discovery	Glenn Deen ✉, David Lawrence ✉ (Assigned AD: Barry Leiba ✉)
dhc	✉ Éric	Dynamic Host Configuration	Bernie Volz ✉, Timothy Winters ✉
dmm	✉ Erik	Distributed Mobility Management	Sri Gundavelli ✉, Dapeng Liu ✉, Satoru Matsushima ✉
dnssd	✉ Éric	Extensions for Scalable DNS Service Discovery	David Schinazi ✉, Barbara Stark ✉
dprive	✉ Éric	DNS PRIVate Exchange	Brian Haberman ✉, Tim Wicinski ✉
drip	✉ Éric	Drone Remote ID Protocol	Mohamed Boucadair ✉, Daniel Migault ✉
hip	✉ Éric	Host Identity Protocol	Gonzalo Camarillo ✉
homenet	✉ Éric	Home Networking	Stephen Farrell ✉, Barbara Stark ✉
intarea	✉ Éric	Internet Area Working Group	Wassim Haddad ✉, Juan-Carlos Zúñiga ✉
ipwave	✉ Erik	IP Wireless Access in Vehicular Environments	Carlos Bernardos ✉, Russ Housley ✉
lpwan	✉ Éric	IPv6 over Low Power Wide-Area Networks	Alexander Pelov ✉, Pascal Thubert ✉
lwig	✉ Erik	Light-Weight Implementation Guidance	Zhen Cao ✉, Mohit Sethi ✉
ntp	✉ Erik	Network Time Protocol	Karen O'Donoghue ✉, Dieter Sibold ✉
tictoc	✉ Erik	Timing over IP Connection and Transfer of Clock	Karen O'Donoghue ✉, Yaakov Stein ✉



Cos'è IETF? (Internet Engineering Task Force)

Un gruppo di persone che contribuisce all'ingegneria e all'evoluzione delle tecnologie Internet. È l'ente principale impegnato nello sviluppo di nuovi standard per Internet.

Cos'è IETF? (Internet Engineering Task Force)

Non vi è alcuna appartenenza formale a IETF. Chiunque può iscriversi alle *mailing list* del gruppo di lavoro o partecipare ai *meeting*. La cosa più simile all'essere un membro IETF è essere un partecipante delle *mailing list* o del gruppo di lavoro.

Cos'è IETF? (Internet Engineering Task Force)

Due sono le fondamentali fonti di informazione:

1. il sito web <https://www.ietf.org>
2. il database <https://datatracker.ietf.org>

Cos'è IETF? (Internet Engineering Task Force)

Due sono i principi fondanti:

1. *“Rifiutiamo re, presidenti e voto. Crediamo nel rough consensus e nell'esecuzione del codice”*
(David Clark)
2. *“Sii conservatore in ciò che invii e liberale in ciò che accetti”* (Jon Postel)

ROUGH CONSENSUS (RFC 2418)

Processo del **consenso imperfetto**: non è necessario che tutti i partecipanti siano d'accordo (sebbene sia preferibile), ma dovrebbe prevalere il punto di vista dominante espresso in seno al gruppo di lavoro di IETF.

Va ricercato un accordo in senso generale che, solitamente, emerge dopo una selezione naturale delle argomentazioni espresse dai membri del gruppo di lavoro.

Comunque è il presidente del gruppo di lavoro a determinare il raggiungimento del consenso imperfetto.

ROUGH CONSENSUS (RFC 2418)

In parole povere:

le obiezioni fortemente sostenute devono essere discusse fino a quando la maggior parte delle persone non sarà convinta che queste obiezioni siano sbagliate.

[🏠](#) > [How we work](#)

Running code

An unofficial motto of the IETF is, "We believe in rough consensus and running code." Implementation experience provides critical feedback to the standardization process.

IETF participants are encouraged to develop implementations of standards and pre-standard specifications before, during, and after the IETF standardization process. While many participants write code relevant to IETF standards on their own time for work or pleasure, the IETF also plays host to a number of activities to encourage participants develop, contribute, and promote code directly related to the IETF and IETF standards.

Cos'è IETF? (Internet Engineering Task Force)

Una è la lingua ufficiale: English

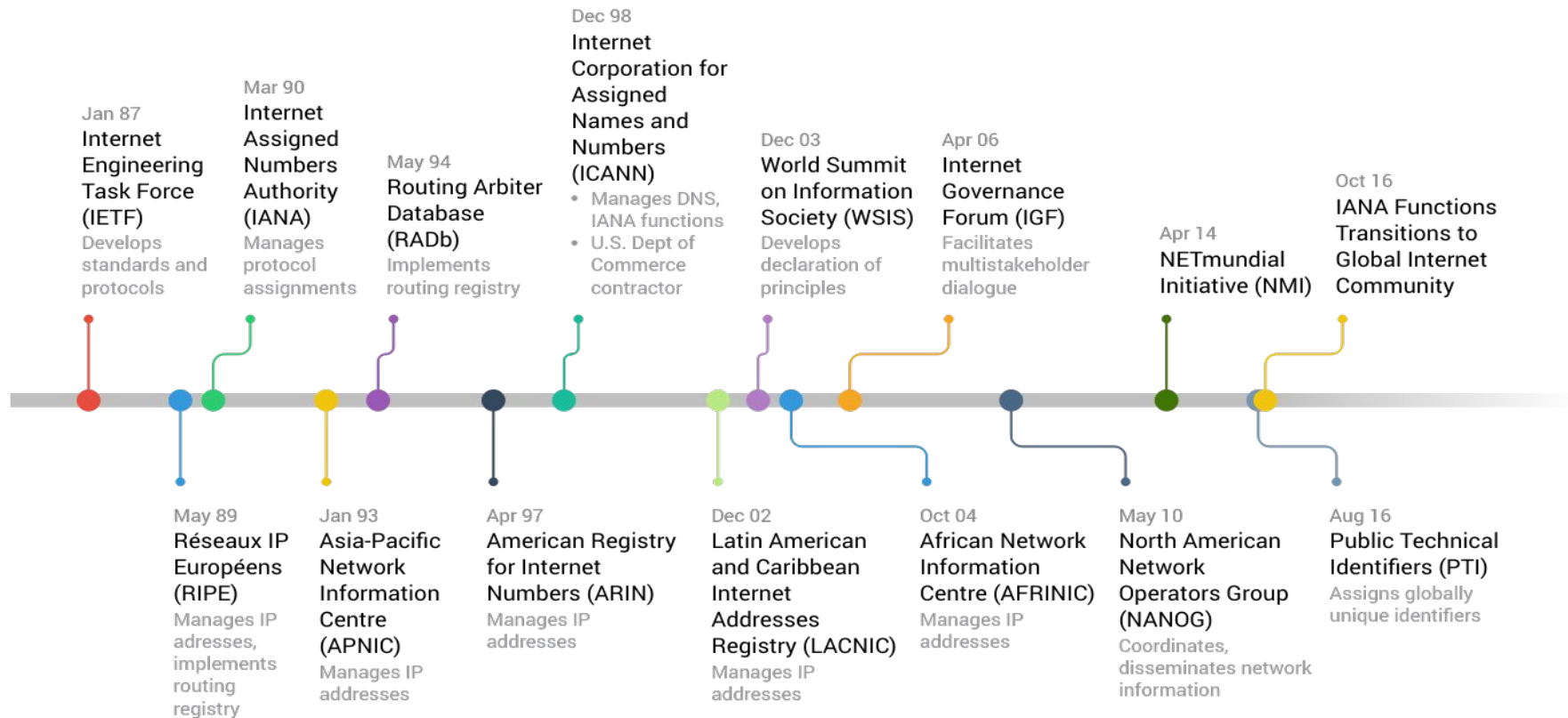
IETF: un po' di storia

Il primo *meeting* è del 1986, ma è nel 1987 che viene introdotto il concetto di gruppi di lavoro. Il *meeting* numero 14, nel 1989, segnò un riposizionamento di IAB (oggi *Internet Architecture Board*) che, anziché supervisionare molte *task force*, cominciò a concentrarsi solo su IETF e IRTF (*Internet Research Task Force*). Quest'ultima vocata alla ricerca di lungo periodo sui problemi di Internet.

Nel 1992, costituita ISOC, IAB propose di poter operare sotto la supervisione di ISOC stessa che, nello stesso anno, accettò.

Dunque, per grandi linee, la gerarchia è: ISOC $\rightarrow$ IAB $\rightarrow$ IETF

Internet governance timeline



IETF: la gerarchia

ISOC

La Internet Society è un'organizzazione internazionale, senza scopo di lucro, che sostiene e promuove lo sviluppo di Internet come infrastruttura tecnica globale, una risorsa per arricchire la vita delle persone e una forza per il bene nella società. Uno dei modi in cui ISOC lo fa è supportando IETF.

IETF: la gerarchia

ISOC

Dal 2005, ISOC è diventata la base per il personale amministrativo impiegato direttamente da IETF.

Il personale comprendeva solo un direttore amministrativo (IAD) che lavorava a tempo pieno per la supervisione della pianificazione dei *meeting* IETF, degli aspetti operativi dei servizi di supporto come IANA (*Internet Assigned Numbers Authority*), RFC *editor* e bilancio.

IETF: la gerarchia

ISOC, priorità 2022 → partecipa anche tu!

- Sebbene l'accesso a Internet sia in crescita, continua a crescere in modo diseguale
- C'è una lotta su Internet. Da un lato ci sono le società globali che possiedono l'ambiente da cui molti di noi dipendono, con un controllo efficace di alcuni mercati tecnologici. Dall'altro lato ci sono i governi che usano leggi e regolamenti ridurre queste società all'obbedienza
- Gli utenti di Internet e le transazioni che intraprendono vivono in una complessa intersezione di privacy e sicurezza, e Internet non sarà mai affidabile finché le comunicazioni non saranno private e sicure in modo affidabile
- Le interruzioni totali o parziali di Internet in alcune Nazioni continuano a minarne l'utilità e il valore

<https://www.surveymonkey.com/r/InternetSociety2022Priorities>

IETF: la gerarchia

IETF Administration LLC

Recentemente è stata fondata IETF Administration LLC, formalmente una divisione di ISOC, allo scopo di:

- supportare le operazioni di IETF, compresi i *meeting*;
- gestire le finanze e il bilancio di IETF;
- raccogliere fondi per conto di IETF;
- stabilire e applicare politiche per garantire la conformità a leggi e regolamenti.

IETF: la gerarchia

IESG (Internet Engineering Steering Group)

Si occupa della gestione tecnica delle attività IETF e del processo degli standard Internet secondo le regole e le procedure che sono state ratificate dal Consiglio di fondazione di ISOC.

Il suo ruolo è indicare direzioni piuttosto che dare ordini. IESG ratifica o guida le risultanze dei gruppi di lavoro di IETF, avvia e scioglie i gruppi di lavoro e si assicura che le bozze (non prodotte dai gruppi) che stanno per diventare RFC siano corrette.

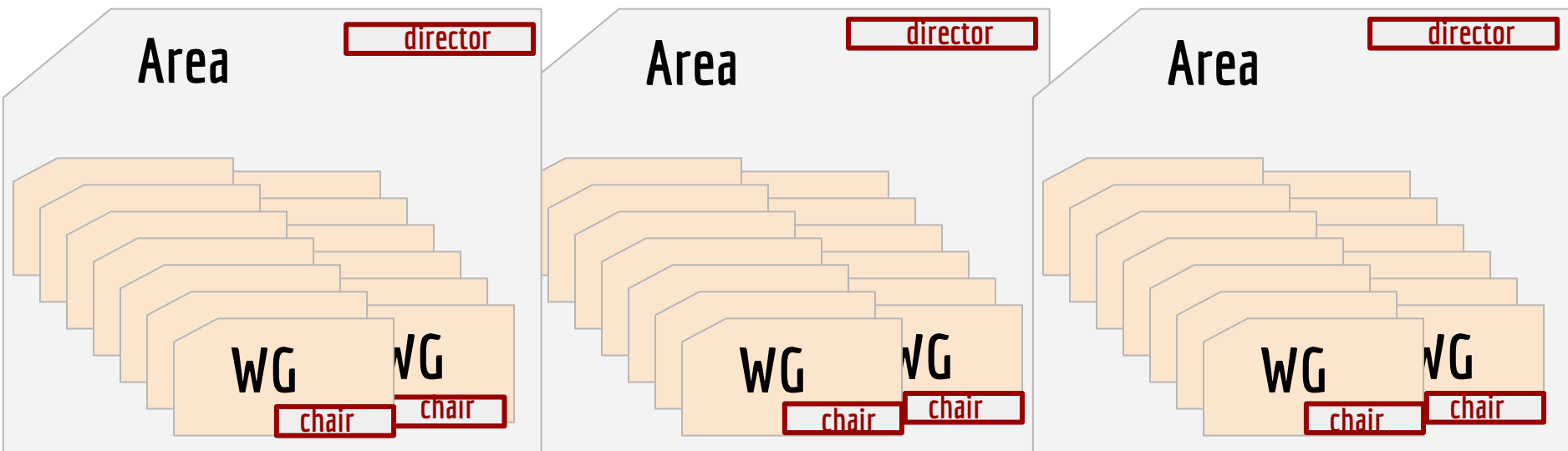
IETF: la gerarchia

IESG (Internet Engineering Steering Group)

IESG è composto dagli Area Director (AD), selezionati dal Comitato per le Nomine (NomCom) e possono rimanere in carica per due anni. Le principali aree di azione di IETF sono:

- Applications and Real-Time Area (art)
- General (gen)
- Internet (int)
- Operations and Management (ops)
- Routing (rtg)
- Security (sec)
- Transport (tsv)

IETF è una grande comunità di esperti di rete, operatori, costruttori, utenti e ricercatori interessati a Internet e alla sua tecnologia. Le attività vengono condotte all'interno dei gruppi di lavoro (IETF Working Group), ciascuno dei quali ha degli obiettivi specifici e una durata nel tempo legata al loro raggiungimento. Ognuno di questi gruppi ha un presidente (Chair). I gruppi di lavoro omogenei sono riuniti in aree, ciascuna delle quali è gestita da un direttore. I direttori di area (AD) formano, assieme al presidente di IETF, l'Internet Engineering Steering Group (IESG), organo che ha il compito di approvare gli standard e di pubblicare gli altri documenti di IETF.



IETF: la gerarchia

IAB (Internet Architecture Board)

IAB tiene d'occhio il quadro generale di Internet e si concentra sulla pianificazione e sul coordinamento a lungo termine tra le varie aree di attività di IETF.

Quando viene proposto un nuovo gruppo di lavoro IETF, IAB rivede le sue finalità affinché siano coerenti con l'intera architettura di Internet.

IAB sponsorizza e organizza anche IRTF (*Internet Research Task Force*) e organizza seminari che forniscono analisi approfondite di specifiche questioni relative all'architettura di Internet. In genere, le risultanze dei seminari forniscono raccomandazioni alla comunità IETF e a IESG.

IAB mantiene la comunità informata tramite articoli sul proprio sito e pubblicando RFC.

RFC 2826 IAB Technical Comment on the Unique DNS Root, maggio 2000

To remain a global network, the Internet requires the existence of a globally unique public name space. The DNS name space is a hierarchical name space derived from a single, globally unique root. This is a technical constraint inherent in the design of the DNS. Therefore it is not technically feasible for there to be more than one root in the public DNS. That one root must be supported by a set of coordinated root servers administered by a unique naming authority.

RFC 2826 IAB Technical Comment on the Unique DNS Root, maggio 2000

The requirement for uniqueness within a domain further implies that there be some mechanism to prevent name conflicts within a domain. In DNS this is accomplished by assigning a single owner or maintainer to every domain, including the root domain, who is responsible for ensuring that each sub-domain of that domain has the proper records associated with it. This is a technical requirement, not a policy choice.

IETF: la gerarchia

IAB (Internet Architecture Board)

2021-05-26: IAB Technical Discussion: The Internet of three protocols (Russ)

<https://ietf.webex.com/ietf/j.php?MTID=m4b8cec7facd432a92c108542d647e5a8>

Meeting password: 1@Bmeet

IAB Agenda: 2021-05-26 1400 UTC

Agenda as of 2021-05-19 IAB agendas are subject to change, up to and during the meeting.

1. Administrivia (Cindy) - 5 mins (Public)
 - 1.1. Attendance
2. IAB Technical Discussion: The Internet of three protocols

IETF: la gerarchia

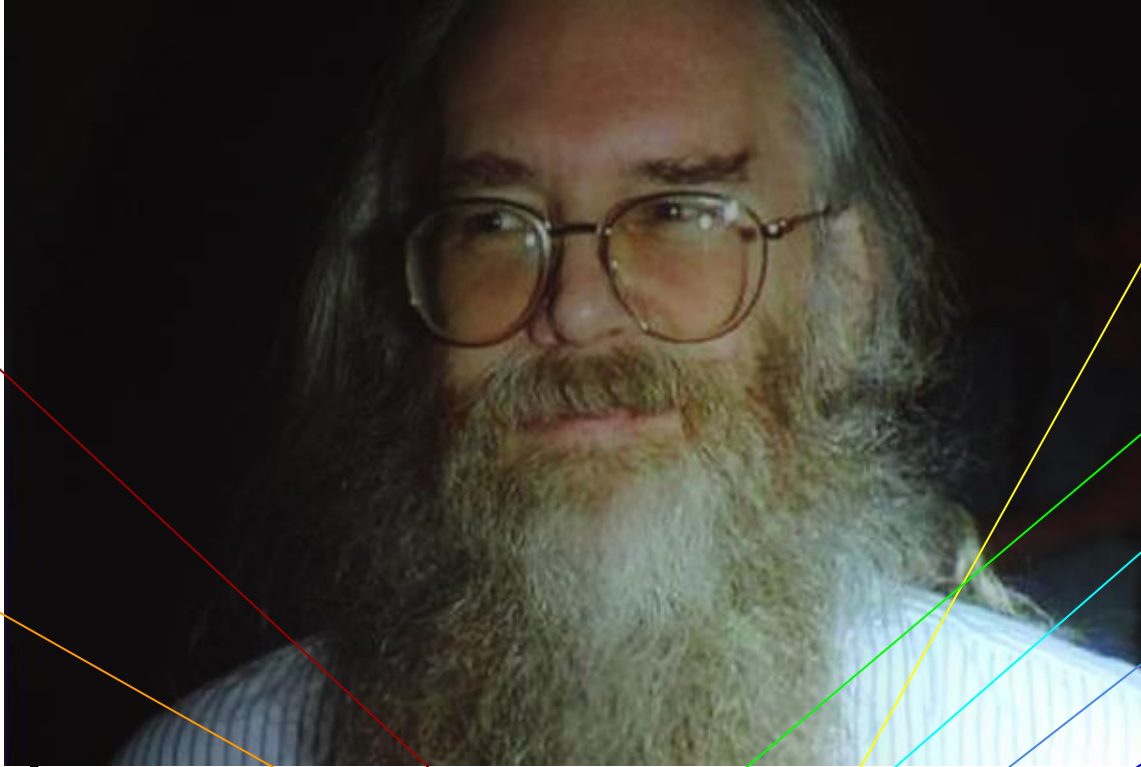
IANA (Internet Assigned Numbers Authority)

Il principale *registrar* per le attività di IETF è IANA (<https://www.iana.org>). Molti protocolli Internet richiedono che qualcuno tenga traccia degli elementi del protocollo aggiunti dopo la sua uscita. A esempio i numeri di porta TCP e UDP.

IAB ha dato a IANA il compito di eseguire queste attività, attività che sono sostenute finanziariamente da ICANN (*Internet Corporation for Assigned Names and Numbers*).



spam
UDP
hostnames



telnet

SMTP

IP

ICMP

TCP

Jon Postel, Internet pioneer (1943-1998)

[RFC 77, 127, 128, 139, 145, 158, 165, 204, 229, 236, 268, 295, 317, 318, 322, 324, 328, 346, 347, 348, 349, 429, 433, 489, 516, 580, 587, 604, 640, 659, 661, 678, 690, 694, 706, 717, 718, 719, 730, 750, 753, 754, 755, 759, 760, 761, 762, 764, 765, 766, 767, 768, 769, 770, 774, 776, 777, 788, 790, 791, 792, 793, 795, 796, 821]





Jon Postel

RFC editor dal 1969

Numbering czar dal 1972

La legge di Postel (RFC 1122):

Be liberal in what you
accept, and conservative
in what you send

IN MEMORIAM

Dr. Jonathan B. Postel
August 3, 1943 - October 16, 1998

Executive Director and Founder, Internet Assigned Numbers Authority
Director, Computer Networks Division, Information Sciences Institute
RFC Editor; Trustee, Internet Society
Internet Networking Pioneer and Visionary

A memorial for Dr. Postel was held on November 5, 1998 at 11 a.m. in the Bovard Auditorium of the University of Southern California. The memorial service was webcast by USC.

[Eulogy by Vint Cerf: I Remember IANA RFC 2468](#)

[Eulogy by Daniel Farber: A Life Too Brief](#)

[Eulogy by Paul Vixie: Requiem for Jon Postel](#)

[Boardwatch \(12-98\)](#) Jon Postel Streamlines the Afterlife

[Wired \(11-5-98\)](#) A Wizard Rests in Peace

[Inter@ctive Week \(10-26\)](#) Jon Postel: Internet Architect and Caretaker

[New York Times \(10-18-98\)](#) Jon Postel, Who Helped Create the Internet, is Dead at 55

[Washington Post \(10-18\)](#): Jon Postel, Internet Pioneer, Dies at 55 after Heart Surgery

[Los Angeles Times \(10-18\)](#): Jon Postel, Influential Internet Pioneer, Dies

[Wired \(10-18-98\)](#) Net Mourns Passing of Giant

[San Jose Mercury News \(10-18\)](#): Internet Founding Father Dies

[C/Net \(10-19\)](#): IANA Chief Jon Postel Dies

[USC News Service \(10-19\)](#): Internet Pioneer Jon Postel Dies at 55

[Internet Week](#) [TechWeb \(10-19\)](#): Head of Internet Domain-Names Group Dies

[Internet News \(10-27\)](#): Postel Memorial Webcast Set for Nov. 5

[C/Net \(11-5\)](#) Postel Eulogized as Humble Genius



Photo by Peter Lothberg



[Dr. Jon Postel](#) was the Director of ISI's Computer Networks Division, based in Marina del Rey, California. He also held leadership positions in several Internet infrastructure activities. He was founder and head of the Internet Assigned Numbers Authority, RFC Editor, and chief administrator of the .US domain. He



Jon Postel

Network Working Group
Request for Comments: 2468
Category: Informational

V. Cerf
MCI
October 1998

I REMEMBER IANA

October 17, 1998

Status of this Memo

This memo provides information for the Internet community. It does not specify an Internet standard of any kind. Distribution of this memo is unlimited.

Copyright Notice

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Remembrance

A long time ago, in a network, far far away, a great adventure took place!

Out of the chaos of new ideas for communication, the experiments, the tentative designs, and crucible of testing, there emerged a cornucopia of networks. Beginning with the ARPANET, an endless stream of networks evolved, and ultimately were interlinked to become the Internet. Someone had to keep track of all the protocols, the identifiers, networks and addresses and ultimately the names of all the things in the networked universe. And someone had to keep track of all the information that erupted with volcanic force from the intensity of the debates and discussions and endless invention that has continued unabated for 30 years. That someone was Jonathan B. Postel, our Internet Assigned Numbers Authority, friend, engineer, confidant, leader, icon, and now, first of the giants to depart from our midst.

Jon, our beloved IANA, is gone. Even as I write these words I cannot quite grasp this stark fact. We had almost lost him once before in 1991. Surely we knew he was at risk as are we all. But he had been our rock - the foundation on which our every web search and email was



Perché dal 2016 Internet è più libera di prima

Dopo una consultazione pubblica, l'agenzia **NTIA** (*National Telecommunications and Information Administration*) in seno al Dipartimento del commercio (**DoC**, *Department of Commerce*) del Governo degli Stati Uniti d'America, formalizzò un contratto, nel **1998**, con un nuovo organismo appositamente creato, **ICANN** (*Internet Corporation for Assigned Names and Numbers*).

Il **14 marzo 2014** NTIA esprime la volontà di cessare il contratto con ICANN e trasferire le proprie prerogative sull'infrastruttura dei numeri di Internet (cioè IANA) a ICANN stessa a patto che il suo ruolo venisse sostituito da una organizzazione cosiddetta multi-stakeholder, cioè estesa a tutti i portatori di interesse.

Quel processo di formazione di una comunità senza colore, né bandiera è durato oltre un anno e dal **primo ottobre 2016** ICANN garantisce che le funzioni di IANA siano supervisionate da questa comunità globale di portatori di interesse.

[Home](#) » [Newsroom](#) » [Press Releases](#) » 2016

Statement of Assistant Secretary Strickling on IANA Functions Contract

Topics: [Domain Name System](#) [IANA functions](#)

 [Printer-friendly version](#)

FOR IMMEDIATE RELEASE:

October 01, 2016

News Media Contact:

Juliana Gruenwald, (202) 482-2145, jgruenwald@ntia.doc.gov

Statement from Assistant Secretary for Communications and Information and NTIA Administrator Lawrence E. Strickling:

The federal court in Galveston, Texas denied the plaintiffs' application for declaratory and injunctive relief. As of October 1, 2016, the IANA functions contract has expired.

[Vai all'articolo completo](#)



Sign-in to access the agenda now!

ICANN71 VIRTUAL POLICY FORUM

Latest Information and News

- ICANN71 Policy Forum will be held as a **Virtual Public Meeting** during **14-17 June 2021**. Read the announcement [here](#).
- Sessions during ICANN71 will be held during regular working hours in **The Hague, Netherlands (CEST / UTC+2, Amsterdam/Paris)**.
- **Prep Week** will be held **1-3 June 2021**. The Prep Week schedule is available [here](#).
- The **Policy Forum schedule** will be **published on 24 May 2021**.
- ICANN continues the pandemic Internet access reimbursement program. [Learn more here](#).



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Engagement

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IETF: la gerarchia

RFC Editor

RFC *editor* modifica, formatta e pubblica Internet-Draft come RFC, lavorando in collaborazione con IESG per le RFC IETF, con il presidente di IRTF per le RFC IRTF, con IAB per le RFC IAB e con l'editore di contributi indipendenti per le RFC del flusso indipendente e, ovviamente, lavorando con gli autori.

Altro ruolo importante è fornire un archivio completo di tutte le RFC (<https://www.rfc-editor.org>), infatti, una volta che una RFC viene pubblicata, non viene mai cambiato. Se la specifica che descrive cambia, lo standard verrà ripubblicato in un'altra RFC che rende obsoleta la prima. Se viene rilevato un errore tecnico o editoriale in una RFC, è possibile archiviare una ERRATA per la revisione. Se accettata, l'ERRATA verrà collegata alla RFC.

IETF Mailing List

Chiunque abbia intenzione di partecipare a IETF, *meeting* inclusi, può iscriversi alla *mailing list* degli annunci dove vengono pubblicate tutte le informazioni sui *meeting*, sulle RFC, sulle azioni di IESG ecc.

Chiunque desideri avere informazioni tecniche può iscriversi alla lista generica IETF dove si tengono discussioni generali. Diversamente, infatti, i gruppi di lavoro hanno le proprie *mailing list* per le discussioni specifiche.

Le liste di discussione non sono moderate, cioè tutti possono esprimere le proprie opinioni su questioni che interessano Internet. Tuttavia, non è consentito fare pubblicità.

IETF MEETING

I *meeting* si tengono tre volte all'anno e durano una settimana. Lo scopo primario è stimolare i gruppi di lavoro a portare a termine i loro compiti; ulteriore obiettivo è anche mescolare tra loro i diversi gruppi nelle diverse aree di pertinenza.

Per molti i *meeting* rappresentano una boccata d'aria fresca rispetto alle conferenze standard del campo informatico. Non ci sono sale espositive, pochi *tutorial* e nessun grande esperto del settore. Ci sono invece molto lavoro e una discreta quantità di tempo per socializzare.

IETF 111 San Francisco

24 Jul 2021 - 30 Jul 2021

IETF 111 starts Saturday 24 July and runs through Friday afternoon, 30 July.

The [IETF Hackathon](#) and [IETF Codesprint](#) take place on the weekend. Newcomers' training and technical tutorials take place on Sunday afternoon. Participants should plan their travel accordingly. The schedule may be updated very close to the start to the meeting.

Key details

[Registration](#) ▾

[Register](#)

[Retrieve / Pay Registration](#)

[Attendance List](#)

[Important Dates](#)

[Local Letters of Invitation](#)

[Venue and Area Information](#) ▾

[Meeting Venue and Hotels](#)

[Local Contact Info \(.vcf\)](#)

[Emergency Information](#)

[Meeting Wiki](#)

[Additional Events](#) ▾

[Code Lounge](#) | [Code Sprint](#)

[IETF 111 Hackathon](#)

[Social Event](#) | [Host Speaker Series](#)

[Agendas and Meeting Materials](#) ▾

[Agenda \(HTML\)](#)

[iPhone/iPad App](#) | [Android App](#)

[EDU Tutorials](#)

[Meeting Materials](#) | [Floor Plans](#)

[Meeting Communication](#) ▾

MEETINGS AND EVENTS

[IETF 110 Online](#)

[IETF 111 San Francisco](#)

[IETF 112 Madrid](#)

[Upcoming Meetings](#)

[Past Meetings](#)

[Interim Meetings](#)

[Register for the Next IETF Meeting](#)

[Proceedings](#)

[Meeting Planning](#)

[Meeting Technology](#)

I gruppi di lavoro

I gruppi di lavoro costituiscono il cuore pulsante di IETF. Al momento se ne contano oltre cento. Ma in cosa consiste in effetti questo famoso *working group*?

In poche parole è una *mailing list* con un po' di supervisione e facilitazione: si diventa membri del gruppo di lavoro iscrivendosi alla relativa lista. Ciascun gruppo ha uno o due (raramente tre) presidenti.

Ogni gruppo di lavoro ha una specie di statuto da seguire e stabilisce l'ambito di discussione e gli obiettivi.

I presidenti dei gruppi di lavoro

Il primo compito di un presidente è determinare gli obiettivi e le pietre miliari del consenso del gruppo di lavoro, mantenendo aggiornato lo statuto. Aiutati dai segretari del gruppo di lavoro o dai redattori di documenti, il presidente gestisce la discussione sia in lista sia nei *meeting*.

Egli dichiara quando è stato raggiunto il *rough consensus* ed è responsabile della qualità del lavoro del gruppo.

IETF BOF

Come si forma un *working group*? Occorrono persone, statuto e presidente.

A questo scopo è necessario coinvolgere le persone in modo che possano convergere su uno statuto e poi convincere un Direttore di Area che il progetto valga la pena. A questo scopo si organizza un incontro faccia a faccia, un BOF (*Birds of a Feather*), un gruppo di discussione informale che deve essere preventivamente approvato dal Direttore di Area.

Internet-Draft e RFC

Ogni standard IETF viene pubblicato come RFC (*Request for Comments*) e ogni RFC inizia come Internet-Draft (chiamato I-D o *draft*). Di seguito la trafila necessaria:

1. pubblicare il documento come Internet-Draft;
2. ricevere commenti sul draft;
3. modificare il draft in base ai commenti;
4. ripetere i passaggi da 1 a 3 alcune volte;
5. se la presentazione è di tipo individuale, chiedere a un Area Director di presentare il draft a IESG;
6. se il draft è un prodotto ufficiale del gruppo di lavoro, il presidente chiede all'AD di presentarlo a IESG;
7. se il Direttore di Area accetta, effettuerà la propria revisione iniziale e forse chiederà aggiornamenti prima di procedere;
8. raccogliere osservazioni dalla platea IETF;
9. discutere eventuali obiezioni con i membri IESG;
10. attendere che il documento venga pubblicato da RFC Editor.

Network Working Group
Request for Comments: 1

Steve Crocker
UCLA
7 April 1969

Title: Host Software
Author: Steve Crocker
Installation: UCLA
Date: 7 April 1969
Network Working Group Request for Comment: 1

CONTENTS

INTRODUCTION

[RFC 1](#), 7 aprile 1969

I. A Summary of the IMP Software

Messages

Links

IMP Transmission and Error Checking

Open Questions on the IMP Software

II. Some Requirements Upon the Host-to-Host Software

Request for comments

TABLE OF CONTENTS.

- I Transmission features
1. Transmission checking
 2. HOST(A) to HOST(B) links.

- II Functional software specifications.
1. User program - DEL language
 2. Network program
 3. Transmission Handler

- III Link establishment procedure.
1. General procedure
 2. Example

[RFC 8](#), 5 maggio 1969

Request for comments

NWG
RFC # 174
NIC # 6799
Categories: D.6,I.1
References: 134
Obsoletes: none

J. Postel, V. Cerf
UCLA-NMC
Computer Science
8 June 71

UCLA-Computer Science Graphics Overview

I. Hardware

A. Imlac PDS-1

We have 2 PDS-1 graphics consoles each with 8K 16 bit words of memory.

The display screens are mounted with the long axis vertical.

B. DEC 340

We have a DEC 340 Display Station with a light pen. Associated with the station are a Rand Tablet and a Lincoln Wand. There is a display processor which drives the DEC 340 which reads its instruction from the XDS Sigma 7 memory via dedicated memory port.

II. Software

A. Imlacs

We have not as yet developed any software for the PDS-1. We have used the Imlac provided text and graphics support software to utilize the PDS-1's as alphameric and limited graphics consoles (at 1200 baud).

These are used only with the SEX timesharing system.

B. DEC 340

We have over several years developed a package of Library routines* which interface to FORTRAN programs for use with the DEC 340 and its associated devices. This station is used only with a stand alone system (RAD 75).

Several programs have been implemented using these facilities

[RFC 174](#), 8 giugno 1971
Jon Postel, Vinton Cerf

Request for comments



Internet-Draft e RFC

Sei sono i tipi di RFC:

1. Proposed standards
2. Internet standards (sometimes called "full standards")
3. Best current practices (BCP) documents
4. Informational documents
5. Experimental documents
6. Historic documents

Internet-Draft e RFC

Quattro i canali delle RFC:

1. IAB
2. IETF
3. IRTF
4. Indipendenti

Internet-Draft e RFC

Quattro i canali delle RFC:

IAB → RFC

IETF → RFC, BCP e STD

IRTF → RFC

Indipendenti → RFC

Internet-Draft e RFC

Independent Submission
Request for Comments: 8962
Category: Informational
ISSN: 2078-1721

Informational
[Errata exist](#)

G. Grover

N. ten Oever

C. Cath

S. Sahib
1 April 2021

Establishing the Protocol Police

Abstract

One mantra of the IETF is, "We are not the Protocol Police." However, to ensure that protocols are implemented and deployed in full compliance with the IETF's standards, it is important to set up a body that is responsible for assessing and enforcing correct protocol behavior.

This document formally establishes the Protocol Police. It defines the body and sets out what aspects of IETF protocols they will police. This document acts as a point of reference for networking engineers, law enforcement officials, government representatives, and others. It also provides advice on how to report issues to the Protocol Police.

Internet-Draft e RFC

Un Internet-Draft NON è un mezzo per pubblicare una specifica, cosa che viene fatta attraverso le RFC.

Gli Internet-Draft non hanno uno *status* formale e sono soggetti a modifica o rimozione in qualsiasi momento.

Per controllare lo stato di un particolare *draft*, o altri dettagli è possibile consultare la "*Internet-Drafts Database Interface*".

Brevetti e standard

L'obiettivo di IETF è che gli standard siano ampiamente utilizzati e convalidati sul mercato. Se per creare un prodotto capace di implementare uno standard è necessario l'ottenimento di una licenza per un brevetto, è meno probabile che lo standard venga implementato.

Come contribuire

Lèggere

Rivedere gli Internet-Draft nell'area di propria competenza e commentarli nei gruppi di lavoro. Partecipare alla discussione in modo amichevole e disponibile, con l'obiettivo di ottenere i migliori standard Internet possibili. Ascoltare di più, parlare meno. Se non si è d'accordo, è necessario discutere le questioni tecniche ma mai attaccare le persone.

Come contribuire

Implementare

Scrivere programmi che utilizzino gli attuali standard Internet poiché non valgono molto se non sono disponibili agli utenti. Implementare anche gli standard minori, segnalare eventuali problemi riscontrati con gli standard al gruppo di lavoro appropriato in modo che lo standard possa essere chiarito nelle revisioni successive.

Come contribuire

Scrivere

Diventare autore di Internet-Draft nella propria area di competenza, non per far apparire il proprio nome (o, peggio ancora, il nome della propria azienda) su un documento.

Network Working Group
Request for Comments: 3271
Category: Informational

V. Cerf
Internet Society
April 2002

The Internet is for Everyone

Status of this Memo

This memo provides information for the Internet community. It does not specify an Internet standard of any kind. Distribution of this memo is unlimited.

[RFC 3271](#), aprile 2002
Vinton Cerf

Copyright Notice

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Abstract

This document expresses the Internet Society's ideology that the Internet really is for everyone. However, it will only be such if we make it so.

1. The Internet is for everyone

How easy to say - how hard to achieve!

Request for comments

The Internet is for Everyone [RFC 3271](#), aprile 2002 - Vinton Cerf

How easy to say - how hard to achieve!

How have we progressed towards this noble goal?

The Internet is in its 14th year of annual doubling since 1988. There are over 150 million hosts on the Internet and an estimated 513 million users, world wide. By 2006, the global Internet is likely to exceed the size of the global telephone network, if it has not already become the telephone network by virtue of IP telephony. Moreover, as many as 1.5 billion Internet-enabled appliances will have joined traditional servers, desktops and laptops as part of the Internet family. Pagers, cell phones and personal digital assistants may well have merged to become the new telecommunications tools of the next decade. But even at the scale of the telephone system, it is sobering to realize that only half of the Earth's population has ever made a telephone call. It is estimated that commerce on the network will reach somewhere between \$1.8T and \$3.2T by 2003. That is only two years from now (but a long career in Internet years).

The number of Internet users will likely reach over 1000 million by the end of the year 2005, but that is only about 16% of the world's population. By 2047 the world's population may reach about 11 billion. If only 25% of the then world's population is on the Internet, that will be nearly 3 billion users.

As high bandwidth access becomes the norm through digital subscriber loops, cable modems and digital terrestrial and satellite radio links, the convergence of media available on the Internet will become obvious. Television, radio, telephony and the traditional print media will find counterparts on the Internet - and will be changed in profound ways by the presence of software that transforms the one-way media into interactive resources, shareable by many.

The Internet is proving to be one of the most powerful amplifiers of speech ever invented. It offers a global megaphone for voices that might otherwise be heard only feebly, if at all. It invites and facilitates multiple points of view and dialog in ways unimplementable by the traditional, one-way, mass media.

The Internet is for Everyone RFC 3271, aprile 2002 - Vinton Cerf

The Internet can facilitate democratic practices in unexpected ways. Did you know that proxy voting for stock shareholders is now commonly supported on the Internet? Perhaps we can find additional ways in which to simplify and expand the voting franchise in other domains, including the political, as access to Internet increases.

The Internet is becoming the repository of all we have accomplished as a society. It has become a kind of disorganized "Boswell" of the human spirit. **Be thoughtful in what you commit to email, news groups, and other Internet communication channels** - it may well turn up in a web search some day. Thanks to online access to common repositories, shared databases on the Internet are acting to accelerate the pace of research progress.

The Internet is moving off the planet! Already, interplanetary Internet is part of the NASA Mars mission program now underway at the Jet Propulsion Laboratory. By 2008 we should have a well-functioning Earth-Mars network that serves as a nascent backbone of an inter-planetary system of Internets - InterPlaNet is a network of Internets! Ultimately, we will have interplanetary Internet relays in polar solar orbit so that they can see most of the planets and their associated interplanetary gateways for most, if not all of the time.

The Internet Society is launching a new campaign to facilitate access to and use of Internet everywhere. The campaign slogan is "Internet is for everyone," but there is much work needed to accomplish this objective.

Internet is for everyone - but it won't be if it isn't affordable by all that wish to partake of its services, so we must dedicate ourselves to making the Internet as affordable as other infrastructures so critical to our well-being. While we follow Moore's Law to reduce the cost of Internet-enabling equipment, let us also seek to stimulate regulatory policies that take advantage of the power of competition to reduce costs.

The Internet is for Everyone RFC 3271, aprile 2002 - Vinton Cerf

Internet is for everyone - but it won't be if Governments restrict access to it, so **we must dedicate ourselves to keeping the network unrestricted, unfettered and unregulated. We must have the freedom to speak and the freedom to hear.**

Internet is for everyone - but it won't be if it cannot keep up with the explosive demand for its services, so we must dedicate ourselves to continuing its technological evolution and development of the technical standards that lie at the heart of the Internet revolution. Let us dedicate ourselves to the support of the Internet Architecture Board, the Internet Engineering Steering Group, the Internet Research Task Force, the Internet Engineering Task Force and other organizations dedicated to developing Internet technology as they drive us forward into an unbounded future. Let us also commit ourselves to support the work of the Internet Corporation for Assigned Names and Numbers - a key function for the Internet's operation.

Internet is for everyone - but it won't be until in every home, in every business, in every school, in every library, in every hospital in every town and in every country on the Globe, the Internet can be accessed without limitation, at any time and in every language.

Internet is for everyone - but it won't be if it is too complex to be used easily by everyone. **Let us dedicate ourselves to the task of simplifying the Internet's interfaces and to educating all that are interested in its use.**

Internet is for everyone - but it won't be if legislation around the world creates a thicket of incompatible laws that hinder the growth of electronic commerce, stymie the protection of intellectual property, and stifle freedom of expression and the development of market economies. **Let us dedicate ourselves to the creation of a global legal framework in which laws work across national boundaries** to reinforce the upward spiral of value that the Internet is capable of creating.

The Internet is for Everyone RFC 3271, aprile 2002 - Vinton Cerf

Internet is for everyone - but it won't be if its users cannot protect their privacy and the confidentiality of transactions conducted on the network. Let us dedicate ourselves to the proposition that **cryptographic technology sufficient to protect privacy from unauthorized disclosure should be freely available, applicable and exportable**. Moreover, as authenticity lies at the heart of trust in networked environments, let us dedicate ourselves to work towards the development of authentication methods and systems capable of supporting electronic commerce through the Internet.

Internet is for everyone - but it won't be if parents and teachers cannot voluntarily create protected spaces for our young people for whom the full range of Internet content still may be inappropriate. Let us dedicate ourselves to the development of **technologies and practices that offer this protective flexibility to those who accept responsibility for providing it**.

Internet is for everyone - but it won't be if we are not responsible in its use and mindful of the rights of others who share its wealth. Let us dedicate ourselves to the responsible use of this new medium and to the proposition that with the freedoms the Internet enables comes a commensurate responsibility to use these powerful enablers with care and consideration. For those who choose to abuse these privileges, **let us dedicate ourselves to developing the necessary tools to combat the abuse and punish the abuser**.

Internet is for everyone - even Martians!

I hope Internauts everywhere will join with the Internet Society and like-minded organizations to achieve this, easily stated but hard to attain goal. As we pass the milestone of the beginning of the third millennium, what better theme could we possibly ask for than making the Internet the medium of this new millennium? Internet IS for everyone - but it won't be unless WE make it so.

IETF Working Groups related to DNS

Domain Name System Operations (dnsop)

[About](#) [Documents](#) [Meetings](#) [History](#) [Photos](#) [Email expansions](#) [List archive »](#) [Tools »](#)

WG **Name** Domain Name System Operations

Acronym dnsop

Area Operations and Management Area (ops)

State Active

Charter [charter-ietf-dnsop-04](#) Approved

Dependencies [Document dependency graph \(SVG\)](#)

Additional - [Wiki](#)

Resources - [github](#)

Personnel **Chairs** [Benno Overeinder](#) 
[Suzanne Woolf](#) 
[Tim Wicinski](#) 

Area Director [Warren Kumari](#) 

Mailing list **Address** dnsop@ietf.org
To subscribe <http://www.ietf.org/mailman/listinfo/dnsop>
Archive <https://mailarchive.ietf.org/arch/browse/dnsop/>

Jabber chat **Room address** <xmpp:dnsop@jabber.ietf.org?join>
Logs <https://jabber.ietf.org/logs/dnsop/>

IETF Working Groups related to DNS

Adaptive DNS Discovery (add)

[About](#)[Documents](#)[Meetings](#)[History](#)[Photos](#)[Email expansions](#)[List archive »](#)[Tools »](#)

WG	Name	Adaptive DNS Discovery
	Acronym	add
	Area	Internet Area (int)
	State	Active
	Charter	charter-ietf-add-01 Approved
	Dependencies	Document dependency graph (SVG)
Personnel	Additional Resources	- GitHub Organization
		- Issue tracker
		- Wiki

Personnel	Chairs	David Lawrence 
		Glenn Deen 
	Area Director	Barry Leiba 

Mailing list	Address	add@ietf.org
	To subscribe	https://www.ietf.org/mailman/listinfo/add
	Archive	https://mailarchive.ietf.org/arch/browse/add/

Jabber chat	Room address	xmpp:add@jabber.ietf.org?join
	Logs	https://jabber.ietf.org/logs/add/

The Adaptive DNS Discovery (ADD) working group will work on the following deliverables:

- Define a mechanism that allows clients to discover DNS resolvers that support encryption and that are available to the client either on the public Internet or on private or local networks.

- Define a mechanism that allows communication of DNS resolver information to clients for use in selection decisions. This could be part of the mechanism used for discovery, above.

- Develop an informational document that describes mechanisms for clients to detect specific network environments (such as captive portal and split horizon) and to use that information to inform their DNS configuration.

This working group will coordinate with dnsop, doh, and dprive for any changes required in DNS protocols and will make sure that those groups are included in major document reviews at appropriate times. It will also work with cappid to ensure that solutions are applicable to captive networks.

IETF Working Groups related to DNS

Extensions for Scalable DNS Service Discovery (dnssd)

About	Documents	Meetings	History	Photos	Email expansions	List archive »	Tools »
-------	-----------	----------	---------	--------	------------------	----------------	---------

WG	Name	Extensions for Scalable DNS Service Discovery
	Acronym	dnssd
	Area	Internet Area (int)
	State	Active
	Charter	charter-ietf-dnssd-01 Approved
	Dependencies	Document dependency graph (SVG)
	Additional Resources	- 1st BoF Jabber Logs - 1st/2nd BoF Mailing List Archive - Issue tracker - Jabber Chat Room - Jabber Logs - Legacy dnssdext Jabber Logs - Mailing List Archive - Wiki

Personnel	Chairs	Barbara Stark  David Schinazi 
	Area Director	Éric Vyncke 

Mailing list	Address	dnssd@ietf.org
	To subscribe	https://www.ietf.org/mailman/listinfo/dnssd
	Archive	https://mailarchive.ietf.org/arch/browse/dnssd/

Jabber chat	Room address	xmpp:dnssd@jabber.ietf.org?join
	Logs	https://jabber.ietf.org/logs/dnssd/



IETF Working Groups related to DNS

DNS PRIVate Exchange (dprive)

About

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WG

Name DNS PRIVate Exchange

Acronym dprive

Area Internet Area (int)**State** ActiveCharter charter-ietf-dprive-02 Approved

Dependencies Document dependency graph (SVG)

Additional - Issue tracker

Resources - Wiki

Personnel

Chairs Brian Haberman

Tim Wicinski

Area Director [Éric Vyncke](#) 

Mailing list

Address dns-privacy@ietf.org

To subscribe <https://www.ietf.org/mailman/listinfo/dns-privacy>

Archive <https://mailarchive.ietf.org/arch/browse/dns-privacy/>

Jabber chat

Room address <xmpp:dprive@jabber.ietf.org?join>

Logs <https://jabber.ietf.org/logs/dprive/>



Quanto tempo richiede la pubblicazione di una RFC?

Secondo lo studio edito nel gennaio del 2021 da **Christian Huitema** nella RFC 8963, *Evaluation of a Sample of RFCs Produced in 2018*, dall'idea alla pubblicazione trascorrono mediamente **3 anni e 4 mesi**:

- 2 anni e 10 mesi circa nel gruppo di lavoro
- 3 mesi circa per il rough consensus e per la revisione di IESG
- 3 circa mesi per la produzione della RFC

Internet per tutti, a scuola con



Domande?

http://www.italia.it

Perché in questi indirizzi ci sono i segni
di due punti e due barre?

URIs in HTTP can be represented in absolute form or relative to some known base URI, depending upon the context of their use. The two forms are differentiated by the fact that absolute URIs always begin with a scheme name followed by a colon.

```
URI           = ( absoluteURI | relativeURI ) [ "#" fragment ]

absoluteURI   = scheme ":" *( uchar | reserved )

relativeURI   = net_path | abs_path | rel_path

net_path      = "//" net_loc [ abs_path ]
abs_path      = "/" rel_path
rel_path      = [ path ] [ ";" params ] [ "?" query ]

path          = fsegment *( "/" segment )
fsegment      = 1*pchar
segment       = *pchar

params        = param *( ";" param )
param         = *( pchar | "/" )
```


nome@italia.it

Dove è scritto che negli indirizzi di posta elettronica si debba usare la chiocciola?

The syntax of the above argument fields (using BNF notation where applicable) is given below. The "... " notation indicates that a field may be repeated one or more times.

<reverse-path> ::= <path>

<forward-path> ::= <path>

<path> ::= "<" [<a-d-l> ":"] <mailbox> ">"

<a-d-l> ::= <at-domain> | <at-domain> "," <a-d-l>

<at-domain> ::= "@" <domain>

<domain> ::= <element> | <element> "." <domain>

<element> ::= <name> | "#" <number> | "[" <dotnum> "]"

<mailbox> ::= <local-part> "@" <domain>

<local-part> ::= <dot-string> | <quoted-string>

Vi siete mai chiesti a
cosa serva e come
funzioni il DNS?

Number	Files	Title	Authors	Date	More Info	Status
RFC 1034 part of STD 13	ASCII , PDF , HTML , HTML with inline errata	Domain names - concepts and facilities	P.V. Mockapetris	November 1987	Errata , Obsoletes RFC 973 , RFC 882 , RFC 883 , Updated by RFC 1101 , RFC 1183 , RFC 1348 , RFC 1876 , RFC 1982 , RFC 2065 , RFC 2181 , RFC 2308 , RFC 2535 , RFC 4033 , RFC 4034 , RFC 4035 , RFC 4343 , RFC 4035 , RFC 4592 , RFC 5936 , RFC 8020 , RFC 8482 , RFC 8767	Internet Standard

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Number	Files	Title	Authors	Date	More Info	Status
RFC 974 part of STD 10	ASCII , PDF	Mail routing and the domain system	C. Partridge	January 1986	Obsoleted by RFC 2821	Historic (changed from Internet Standard)
RFC 1035 part of STD 13	ASCII , PDF	Domain names - implementation and specification	P.V. Mockapetris	November 1987	Obsoletes RFC 973 , RFC 882 , RFC 883 , Updated by RFC 1101 , RFC 1183 , RFC 1348 , RFC 1876 , RFC 1982 , RFC 1995 , RFC 1996 , RFC 2065 , RFC 2136 , RFC 2181 , RFC 2137 , RFC 2308 , RFC 2535 , RFC 2673 , RFC 2845 , RFC 3425 , RFC 3658 , RFC 4033 , RFC 4034 , RFC 4035 , RFC 4343 , RFC 5936 , RFC 5966 , RFC 6604 , RFC 7766 , Errata	Internet Standard
RFC 1101	ASCII , PDF	DNS encoding of network names and other types	P.V. Mockapetris	April 1989	Updates RFC 1034 , RFC 1035	Unknown
RFC 1183	ASCII , PDF	New DNS RR Definitions	C.F. Everhart, L.A. Mamakos, R. Ullmann, P.V. Mockapetris	October 1990	Updates RFC 1034 , RFC 1035 , Updated by RFC 5395 , RFC 5864 , RFC 6195 , RFC 6895 , Errata	Experimental
RFC 1348	ASCII , PDF	DNS NSAP RRs	B. Manning	July 1992	Obsoleted by RFC 1637 , Updates RFC 1034 , RFC 1035	Experimental
RFC 1383	ASCII , PDF	An Experiment in DNS Based IP Routing	C. Huitema	December 1992		Experimental
RFC 1386	ASCII , PDF	The US Domain	A. Cooper, J. Postel	December 1992	Obsoleted by RFC 1480	Informational
RFC 1394	ASCII , PDF	Relationship of Telex Answerback Codes to Internet Domains	P. Robinson	January 1993		Informational

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RFC 1401	ASCII, PDF	Correspondence between the IAB and DISA on the use of DNS	Internet Architecture Board	January 1993		Informational
RFC 1464	ASCII, PDF	Using the Domain Name System To Store Arbitrary String Attributes	R. Rosenbaum	May 1993	Errata	Experimental
RFC 1480	ASCII, PDF	The US Domain	A. Cooper, J. Postel	June 1993	Obsoletes RFC 1386	Informational
RFC 1535	ASCII, PDF	A Security Problem and Proposed Correction With Widely Deployed DNS Software	E. Gavron	October 1993	Errata	Informational
RFC 1536	ASCII, PDF	Common DNS Implementation Errors and Suggested Fixes	A. Kumar, J. Postel, C. Neuman, P. Danzig, S. Miller	October 1993		Informational
RFC 1537	ASCII, PDF	Common DNS Data File Configuration Errors	P. Beertema	October 1993	Obsoleted by RFC 1912	Informational
RFC 1591	ASCII, PDF	Domain Name System Structure and Delegation	J. Postel	March 1994		Informational
RFC 1611	ASCII, PDF	DNS Server MIB Extensions	R. Austein, J. Saperia	May 1994		Historic (changed from Proposed Standard October 2001)

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RFC 1637	ASCII, PDF	DNS NSAP Resource Records	B. Manning, R. Colella	June 1994	Obsoletes RFC 1348 , Obsoleted by RFC 1706	Experimental
RFC 1664	ASCII, PDF	Using the Internet DNS to Distribute RFC1327 Mail Address Mapping Tables	C. Allocchio, A. Bonito, B. Cole, S. Giordano, R. Hagens	August 1994	Obsoleted by RFC 2163	Experimental
RFC 1706	ASCII, PDF	DNS NSAP Resource Records	B. Manning, R. Colella	October 1994	Obsoletes RFC 1637	Informational
RFC 1712	ASCII, PDF	DNS Encoding of Geographical Location	C. Farrell, M. Schulze, S. Pleitner, D. Baldoni	November 1994	Errata	Experimental
RFC 1713 a.k.a. FYI 27	ASCII, PDF	Tools for DNS debugging	A. Romao	November 1994		Informational
RFC 1788	ASCII, PDF	ICMP Domain Name Messages	W. Simpson	April 1995	Obsoleted by RFC 6918	Historic (changed from Experimental February 2013)
RFC 1794	ASCII, PDF	DNS Support for Load Balancing	T. Brisco	April 1995		Informational

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RFC 1876	ASCII, PDF	A Means for Expressing Location Information in the Domain Name System	C. Davis, P. Vixie, T. Goodwin, I. Dickinson	January 1996	Updates RFC 1034 , RFC 1035	Experimental
RFC 1886	ASCII, PDF	DNS Extensions to support IP version 6	S. Thomson, C. Huitema	December 1995	Obsoleted by RFC 3596 , Updated by RFC 2874 , RFC 3152	Proposed Standard
RFC 1912	ASCII, PDF	Common DNS Operational and Configuration Errors	D. Barr	February 1996	Obsoletes RFC 1537	Informational
RFC 1982	ASCII, PDF	Serial Number Arithmetic	R. Elz, R. Bush	August 1996	Updates RFC 1034 , RFC 1035	Proposed Standard
RFC 1995	ASCII, PDF	Incremental Zone Transfer in DNS	M. Ohta	August 1996	Updates RFC 1035 , Errata	Proposed Standard
RFC 1996	ASCII, PDF	A Mechanism for Prompt Notification of Zone Changes (DNS NOTIFY)	P. Vixie	August 1996	Updates RFC 1035	Proposed Standard
RFC 2052	ASCII, PDF	A DNS RR for specifying the location of services (DNS SRV)	A. Gulbrandsen, P. Vixie	October 1996	Obsoleted by RFC 2782	Experimental
RFC 2065	ASCII, PDF	Domain Name System Security Extensions	D. Eastlake 3rd, C. Kaufman	January 1997	Obsoleted by RFC 2535 , Updates RFC 1034 , RFC 1035	Proposed Standard
RFC 2136	ASCII, PDF	Dynamic Updates in the Domain Name System (DNS UPDATE)	P. Vixie, Ed., S. Thomson, Y. Rekhter, J. Bound	April 1997	Updates RFC 1035 , Updated by RFC 3007 , RFC 4035 , RFC 4033 , RFC 4034 , Errata	Proposed Standard
RFC 2137	ASCII, PDF	Secure Domain Name System Dynamic Update	D. Eastlake 3rd	April 1997	Obsoleted by RFC 3007 , Updates RFC 1035	Proposed Standard
RFC 2163	ASCII, PDF	Using the Internet DNS to Distribute MIXER Conformant Global Address Mapping (MCGAM)	C. Allocchio	January 1998	Obsoletes RFC 1664 , Updated by RFC 3597	Proposed Standard

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RFC 2181	ASCII, PDF	Clarifications to the DNS Specification	R. Elz, R. Bush	July 1997	Updates RFC 1034 , RFC 1035 , RFC 1123 , Updated by RFC 4035 , RFC 2535 , RFC 4343 , RFC 4033 , RFC 4034 , RFC 5452	Proposed Standard
RFC 2182 a.k.a. BCP 16	ASCII, PDF	Selection and Operation of Secondary DNS Servers	R. Elz, R. Bush, S. Bradner, M. Patton	July 1997	Errata	Best Current Practice
RFC 2219 a.k.a. BCP 17	ASCII, PDF	Use of DNS Aliases for Network Services	M. Hamilton, R. Wright	October 1997		Best Current Practice
RFC 2230	ASCII, PDF	Key Exchange Delegation Record for the DNS	R. Atkinson	November 1997		Informational
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RFC 2247	ASCII, PDF	Using Domains in LDAP/X.500 Distinguished Names	S. Kille, M. Wahl, A. Grimstad, R. Huber, S. Sataluri	January 1998	Updated by RFC 4519 , RFC 4524	Proposed Standard
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RFC 2345	ASCII, PDF	Domain Names and Company Name Retrieval	J. Klensin, T. Wolf, G. Oglesby	May 1998		Experimental
RFC 2352	ASCII, PDF	A Convention For Using Legal Names as Domain Names	O. Vaughan	May 1998	Obsoletes RFC 2240	Informational
RFC 2517	ASCII, PDF	Building Directories from DNS: Experiences from WWWSeeker	R. Moats, R. Huber	February 1999		Informational

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RFC 2536	ASCII, PDF	DSA KEYS and SIGs in the Domain Name System (DNS)	D. Eastlake 3rd	March 1999	Updated by RFC 6944	Proposed Standard
RFC 2537	ASCII, PDF	RSA/MD5 KEYS and SIGs in the Domain Name System (DNS)	D. Eastlake 3rd	March 1999	Obsoleted by RFC 3110	Proposed Standard
RFC 2538	ASCII, PDF	Storing Certificates in the Domain Name System (DNS)	D. Eastlake 3rd, O. Gudmundsson	March 1999	Obsoleted by RFC 4398	Proposed Standard
RFC 2539	ASCII, PDF	Storage of Diffie-Hellman Keys in the Domain Name System (DNS)	D. Eastlake 3rd	March 1999	Updated by RFC 6944	Proposed Standard
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RFC 2541	ASCII, PDF	DNS Security Operational Considerations	D. Eastlake 3rd	March 1999	Obsoleted by RFC 4641	Informational
RFC 2606 a.k.a. BCP 32	ASCII, PDF	Reserved Top Level DNS Names	D. Eastlake 3rd, A. Panitz	June 1999	Updated by RFC 6761	Best Current Practice
RFC 2671	ASCII, PDF	Extension Mechanisms for DNS (EDNS0)	P. Vixie	August 1999	Obsoleted by RFC 6891	Proposed Standard
RFC 2672	ASCII, PDF	Non-Terminal DNS Name Redirection	M. Crawford	August 1999	Obsoleted by RFC 6672 , Updated by RFC 4592 , RFC 6604	Proposed Standard

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RFC 2673	ASCII, PDF	Binary Labels in the Domain Name System	M. Crawford	August 1999	Obsoleted by RFC 6891 , Updates RFC 1035 , Updated by RFC 3363 , RFC 3364 , Errata	Historic (changed from Proposed Standard August 1999)
RFC 2694	ASCII, PDF	DNS extensions to Network Address Translators (DNS_ALG)	P. Srisuresh, G. Tsirtsis, P. Akkiraju, A. Heffernan	September 1999		Informational
RFC 2782	ASCII, PDF	A DNS RR for specifying the location of services (DNS SRV)	A. Gulbrandsen, P. Vixie, L. Esibov	February 2000	Obsoletes RFC 2052 , Updated by RFC 6335 , Errata	Proposed Standard
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RFC 2845	ASCII, PDF	Secret Key Transaction Authentication for DNS (TSIG)	P. Vixie, O. Gudmundsson, D. Eastlake 3rd, B. Wellington	May 2000	Updates RFC 1035 , Updated by RFC 3645 , RFC 4635 , RFC 6895	Proposed Standard
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RFC 2916	ASCII, PDF	E.164 number and DNS	P. Faltstrom	September 2000	Obsoleted by RFC 3761 , Errata	Proposed Standard
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RFC 3007	ASCII, PDF	Secure Domain Name System (DNS) Dynamic Update	B. Wellington	November 2000	Obsoletes RFC 2137 , Updates RFC 2535 , RFC 2136	Proposed Standard
RFC 3008	ASCII, PDF	Domain Name System Security (DNSSEC) Signing Authority	B. Wellington	November 2000	Obsoleted by RFC 4035 , RFC 4033 , RFC 4034 , Updates RFC 2535 , Updated by RFC 3658	Proposed Standard
RFC 3026	ASCII, PDF	Liaison to IETF/ISOC on ENUM	R. Blane	January 2001		Informational
RFC 3071	ASCII, PDF	Reflections on the DNS, RFC 1591, and Categories of Domains	J. Klensin	February 2001		Informational
RFC 3088	ASCII, PDF	OpenLDAP Root Service An experimental LDAP referral service	K. Zeilenga	April 2001		Experimental
RFC 3090	ASCII, PDF	DNS Security Extension Clarification on Zone Status	E. Lewis	March 2001	Obsoleted by RFC 4033 , RFC 4034 , RFC 4035 , Updates RFC 2535 , Updated by RFC 3658	Proposed Standard
RFC 3110	ASCII, PDF	RSA/SHA-1 SIGs and RSA KEYS in the Domain Name System (DNS)	D. Eastlake 3rd	May 2001	Obsoletes RFC 2537 , Updated by RFC 6944 , Errata	Proposed Standard
RFC 3123	ASCII, PDF	A DNS RR Type for Lists of Address Prefixes (APL RR)	P. Koch	June 2001		Experimental
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RFC 3172 a.k.a. BCP 52	ASCII , PDF	Management Guidelines & Operational Requirements for the Address and Routing Parameter Area Domain ("arpa")	G. Huston, Ed.	September 2001		Best Current Practice
RFC 3197	ASCII , PDF	Applicability Statement for DNS MIB Extensions	R. Austein	November 2001		Informational
RFC 3225	ASCII , PDF	Indicating Resolver Support of DNSSEC	D. Conrad	December 2001	Updated by RFC 4033 , RFC 4034 , RFC 4035	Proposed Standard
RFC 3226	ASCII , PDF	DNSSEC and IPv6 A6 aware server/resolver message size requirements	O. Gudmundsson	December 2001	Updates RFC 2535 , RFC 2874 , Updated by RFC 4033 , RFC 4034 , RFC 4035 , Errata	Proposed Standard
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RFC 3363	ASCII , PDF	Representing Internet Protocol version 6 (IPv6) Addresses in the Domain Name System (DNS)	R. Bush, A. Durand, B. Fink, O. Gudmundsson, T. Hain	August 2002	Updates RFC 2673 , RFC 2874 , Updated by RFC 6672 , Errata	Informational
RFC 3364	ASCII , PDF	Tradeoffs in Domain Name System (DNS) Support for Internet Protocol version 6 (IPv6)	R. Austein	August 2002	Updates RFC 2673 , RFC 2874 , Errata	Informational
RFC 3397	ASCII , PDF	Dynamic Host Configuration Protocol (DHCP) Domain Search Option	B. Aboba, S. Cheshire	November 2002		Proposed Standard

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RFC 3425	ASCII, PDF	Obsoleting IQUERY	D. Lawrence	November 2002	Updates RFC 1035	Proposed Standard
RFC 3445	ASCII, PDF	Limiting the Scope of the KEY Resource Record (RR)	D. Massey, S. Rose	December 2002	Obsoleted by RFC 4033 , RFC 4034 , RFC 4035 , Updates RFC 2535 , Errata	Proposed Standard
RFC 3467	ASCII, PDF	Role of the Domain Name System (DNS)	J. Klensin	February 2003		Informational
RFC 3596 a.k.a. STD 88	ASCII, PDF	DNS Extensions to Support IP Version 6	S. Thomson, C. Huitema, V. Ksinant, M. Souissi	October 2003	Obsoletes RFC 3152 , RFC 1886	Internet Standard (changed from Draft Standard May 2017)
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RFC 3645	ASCII, PDF	Generic Security Service Algorithm for Secret Key Transaction Authentication for DNS (GSS-TSIG)	S. Kwan, P. Garg, J. Gilroy, L. Esibov, J. Westhead, R. Hall	October 2003	Updates RFC 2845	Proposed Standard
RFC 3646	ASCII, PDF	DNS Configuration options for Dynamic Host Configuration Protocol for IPv6 (DHCPv6)	R. Droms, Ed.	December 2003		Proposed Standard
RFC 3655	ASCII, PDF	Redefinition of DNS Authenticated Data (AD) bit	B. Wellington, O. Gudmundsson	November 2003	Obsoleted by RFC 4033 , RFC 4034 , RFC 4035 , Updates RFC 2535	Proposed Standard

RFC 3658	ASCII , PDF	Delegation Signer (DS) Resource Record (RR)	O. Gudmundsson	December 2003	Obsoleted by RFC 4033 , RFC 4034 , RFC 4035 , Updates RFC 3090 , RFC 3008 , RFC 2535 , RFC 1035 , Updated by RFC 3755	Proposed Standard
RFC 3681 a.k.a. BCP 80	ASCII , PDF	Delegation of E.F.F.3.IP6.ARPA	R. Bush, R. Fink	January 2004		Best Current Practice
RFC 3755	ASCII , PDF	Legacy Resolver Compatibility for Delegation Signer (DS)	S. Weiler	May 2004	Obsoleted by RFC 4033 , RFC 4034 , RFC 4035 , Updates RFC 3658 , RFC 2535 , Updated by RFC 3757 , RFC 3845	Proposed Standard
RFC 3757	ASCII , PDF	Domain Name System KEY (DNSKEY) Resource Record (RR) Secure Entry Point (SEP) Flag	O. Kolkman, J. Schlyter, E. Lewis	April 2004	Obsoleted by RFC 4033 , RFC 4034 , RFC 4035 , Updates RFC 3755 , RFC 2535 , Errata	Proposed Standard
RFC 3832	ASCII , PDF	Remote Service Discovery in the Service Location Protocol (SLP) via DNS SRV	W. Zhao, H. Schulzrinne, E. Guttman, C. Bisdikian, W. Jerome	July 2004		Experimental
RFC 3833	ASCII , PDF	Threat Analysis of the Domain Name System (DNS)	D. Atkins, R. Austein	August 2004		Informational
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RFC 3901 a.k.a. BCP 91	ASCII , PDF	DNS IPv6 Transport Operational Guidelines	A. Durand, J. Ihen	September 2004		Best Current Practice
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RFC 4033	ASCII , PDF	DNS Security Introduction and Requirements	R. Arends, R. Austein, M. Larson, D. Massey, S. Rose	March 2005	Obsoletes RFC 2535 , RFC 3008 , RFC 3090 , RFC 3445 , RFC 3655 , RFC 3658 , RFC 3755 , RFC 3757 , RFC 3845 , Updates RFC 1034 , RFC 1035 , RFC 2136 , RFC 2181 , RFC 2308 , RFC 3225 , RFC 3597 , RFC 3226 , Updated by RFC 6014 , RFC 6840 , Errata	Proposed Standard
RFC 4034	ASCII , PDF	Resource Records for the DNS Security Extensions	R. Arends, R. Austein, M. Larson, D. Massey, S. Rose	March 2005	Obsoletes RFC 2535 , RFC 3008 , RFC 3090 , RFC 3445 , RFC 3655 , RFC 3658 , RFC 3755 , RFC 3757 , RFC 3845 , Updates RFC 1034 , RFC 1035 , RFC 2136 , RFC 2181 , RFC 2308 , RFC 3225 , RFC 3597 , RFC 3226 , Updated by RFC 4470 , RFC 6014 , RFC 6840 , RFC 6944 , Errata	Proposed Standard
RFC 4035	ASCII , PDF	Protocol Modifications for the DNS Security Extensions	R. Arends, R. Austein, M. Larson, D. Massey, S. Rose	March 2005	Obsoletes RFC 2535 , RFC 3008 , RFC 3090 , RFC 3445 , RFC 3655 , RFC 3658 , RFC 3755 , RFC 3757 , RFC 3845 , Updates RFC 1034 , RFC 1035 , RFC 2136 , RFC 2181 , RFC 2308 , RFC 3225 , RFC 3597 , RFC 3226 , Updated by RFC 4470 , RFC 6014 , RFC 6840 , RFC 8198 , Errata	Proposed Standard
RFC 4074	ASCII , PDF	Common Misbehavior Against DNS Queries for IPv6 Addresses	Y. Morishita, T. Jinmei	May 2005		Informational
RFC 4143	ASCII , PDF	Facsimile Using Internet Mail (IFAX) Service of ENUM	K. Toyoda, D. Crocker	November 2005	Updated by RFC 6118 , Errata	Proposed Standard
RFC 4159 a.k.a. BCP 109	ASCII , PDF	Deprecation of "ip6.int"	G. Huston	August 2005		Best Current Practice

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RFC 4255	ASCII, PDF	Using DNS to Securely Publish Secure Shell (SSH) Key Fingerprints	J. Schlyter, W. Griffin	January 2006	Errata	Proposed Standard
RFC 4310	ASCII, PDF	Domain Name System (DNS) Security Extensions Mapping for the Extensible Provisioning Protocol (EPP)	S. Hollenbeck	December 2005	Obsoleted by RFC 5910	Proposed Standard
RFC 4322	ASCII, PDF	Opportunistic Encryption using the Internet Key Exchange (IKE)	M. Richardson, D.H. Redelmeier	December 2005	Errata	Informational
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RFC 4367	ASCII, PDF	What's in a Name: False Assumptions about DNS Names	J. Rosenberg, Ed., IAB	February 2006	Errata	Informational
RFC 4386	ASCII, PDF	Internet X.509 Public Key Infrastructure Repository Locator Service	S. Boeyen, P. Hallam-Baker	February 2006		Experimental

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RFC 4431	ASCII, PDF	The DNSSEC Lookaside Validation (DLV) DNS Resource Record	M. Andrews, S. Weiler	February 2006		Informational
RFC 4470	ASCII, PDF	Minimally Covering NSEC Records and DNSSEC On-line Signing	S. Weiler, J. Ihren	April 2006	Updates RFC 4035 , RFC 4034 , Errata	Proposed Standard
RFC 4471	ASCII, PDF	Derivation of DNS Name Predecessor and Successor	G. Sisson, B. Laurie	September 2006		Experimental
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RFC 4501	ASCII, PDF	Domain Name System Uniform Resource Identifiers	S. Josefsson	May 2006	Errata	Proposed Standard
RFC 4509	ASCII, PDF	Use of SHA-256 in DNSSEC Delegation Signer (DS) Resource Records (RRs)	W. Hardaker	May 2006	Errata	Proposed Standard
RFC 4635	ASCII, PDF	HMAC SHA (Hashed Message Authentication Code, Secure Hash Algorithm) TSIG Algorithm Identifiers	D. Eastlake 3rd	August 2006	Updates RFC 2845 , Errata	Proposed Standard
RFC 4641	ASCII, PDF	DNSSEC Operational Practices	O. Kolkman, R. Gieben	September 2006	Obsoletes RFC 2541 , Obsoleted by RFC 6781 , Errata	Informational
RFC 4690	ASCII, PDF	Review and Recommendations for Internationalized Domain Names (IDNs)	J. Klensin, P. Faltstrom, C. Karp, IAB	September 2006	Errata	Informational

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RFC 4701	ASCII , PDF	A DNS Resource Record (RR) for Encoding Dynamic Host Configuration Protocol (DHCP) Information (DHCID RR)	M. Stapp, T. Lemon, A. Gustafsson	October 2006	Updated by RFC 5494 , Errata	Proposed Standard
RFC 4702	ASCII , PDF	The Dynamic Host Configuration Protocol (DHCP) Client Fully Qualified Domain Name (FQDN) Option	M. Stapp, B. Volz, Y. Rekhter	October 2006		Proposed Standard
RFC 4703	ASCII , PDF	Resolution of Fully Qualified Domain Name (FQDN) Conflicts among Dynamic Host Configuration Protocol (DHCP) Clients	M. Stapp, B. Volz	October 2006		Proposed Standard
RFC 4704	ASCII , PDF	The Dynamic Host Configuration Protocol for IPv6 (DHCPv6) Client Fully Qualified Domain Name (FQDN) Option	B. Volz	October 2006		Proposed Standard
RFC 4759	ASCII , PDF	The ENUM Dip Indicator Parameter for the "tel" URI	R. Stastny, R. Shockey, L. Conroy	December 2006		Proposed Standard
RFC 4870	ASCII , PDF	Domain-Based Email Authentication Using Public Keys Advertised in the DNS (DomainKeys)	M. Delany	May 2007	Obsoleted by RFC 4871	Historic
RFC 4892	ASCII , PDF	Requirements for a Mechanism Identifying a Name Server Instance	S. Woolf, D. Conrad	June 2007		Informational

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RFC 4986	ASCII , PDF	Requirements Related to DNS Security (DNSSEC) Trust Anchor Rollover	H. Eland, R. Mundy, S. Crocker, S. Krishnaswamy	August 2007		Informational
RFC 5001	ASCII , PDF	DNS Name Server Identifier (NSID) Option	R. Austein	August 2007		Proposed Standard
RFC 5006	ASCII , PDF	IPv6 Router Advertisement Option for DNS Configuration	J. Jeong, Ed., S. Park, L. Beloeil, S. Madanapalli	September 2007	Obsoleted by RFC 6106	Experimental
RFC 5011 a.k.a. STD 74	ASCII , PDF	Automated Updates of DNS Security (DNSSEC) Trust Anchors	M. StJohns	September 2007		Internet Standard (changed from Proposed Standard January 2013)
RFC 5074	ASCII , PDF	DNSSEC Lookaside Validation (DLV)	S. Weiler	November 2007		Informational
RFC 5155	ASCII , PDF	DNS Security (DNSSEC) Hashed Authenticated Denial of Existence	B. Laurie, G. Sisson, R. Arends, D. Blacka	March 2008	Updated by RFC 6840 , RFC 6944 , Errata	Proposed Standard
RFC 5158	ASCII , PDF	6to4 Reverse DNS Delegation Specification	G. Huston	March 2008	Errata	Informational
RFC 5205	ASCII , PDF	Host Identity Protocol (HIP) Domain Name System (DNS) Extensions	P. Nikander, J. Laganier	April 2008	Obsoleted by RFC 8005	Experimental

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RFC 5346	ASCII, PDF	Operational Requirements for ENUM-Based Softswitch Use	J. Lim, W. Kim, C. Park, L. Conroy	October 2008	Errata	Informational
RFC 5395	ASCII, PDF	Domain Name System (DNS) IANA Considerations	D. Eastlake 3rd	November 2008	Obsoletes RFC 2929 , Obsoleted by RFC 6195 , Updates RFC 1183 , RFC 3597 , Errata	Best Current Practice
RFC 5452	ASCII, PDF	Measures for Making DNS More Resilient against Forged Answers	A. Hubert, R. van Mook	January 2009	Updates RFC 2181	Proposed Standard
RFC 5483	ASCII, PDF	ENUM Implementation Issues and Experiences	L. Conroy, K. Fujiwara	March 2009		Informational
RFC 5507	ASCII, PDF	Design Choices When Expanding the DNS	IAB, P. Faltstrom, Ed., R. Austein, Ed., P. Koch, Ed.	April 2009		Informational
RFC 5509	ASCII, PDF	Internet Assigned Numbers Authority (IANA) Registration of Instant Messaging and Presence DNS SRV RRs for the Session Initiation Protocol (SIP)	S. Loreto	April 2009		Proposed Standard
RFC 5625 a.k.a. BCP 152	ASCII, PDF	DNS Proxy Implementation Guidelines	R. Bellis	August 2009		Best Current Practice
RFC 5679	ASCII, PDF	Locating IEEE 802.21 Mobility Services Using DNS	G. Bajko	December 2009		Proposed Standard
RFC 5702	ASCII, PDF	Use of SHA-2 Algorithms with RSA in DNSKEY and RRSIG Resource Records for DNSSEC	J. Jansen	October 2009	Updated by RFC 6944	Proposed Standard

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RFC 5828	ASCII, PDF	DNS Blacklists and Whitelists	J. Levine	February 2010	Errata	Informational
RFC 5864	ASCII, PDF	DNS SRV Resource Records for AFS	R. Allbery	April 2010	Updates RFC 1183 , Errata	Proposed Standard
RFC 5892	ASCII, PDF	The Unicode Code Points and Internationalized Domain Names for Applications (IDNA)	P. Faltstrom, Ed.	August 2010	Errata	Proposed Standard
RFC 5910	ASCII, PDF	Domain Name System (DNS) Security Extensions Mapping for the Extensible Provisioning Protocol (EPP)	J. Gould, S. Hollenbeck	May 2010	Obsoletes RFC 4310 , Errata	Proposed Standard
RFC 5933	ASCII, PDF	Use of GOST Signature Algorithms in DNSKEY and RRSIG Resource Records for DNSSEC	V. Dolmatov, Ed., A. Chuprina, I. Ustinov	July 2010	Updated by RFC 6944	Proposed Standard
RFC 5936	ASCII, PDF	DNS Zone Transfer Protocol (AXFR)	E. Lewis, A. Hoenes, Ed.	June 2010	Updates RFC 1034 , RFC 1035	Proposed Standard
RFC 5966	ASCII, PDF	DNS Transport over TCP - Implementation Requirements	R. Bellis	August 2010	Obsoleted by RFC 7766 , Updates RFC 1035 , RFC 1123	Proposed Standard
RFC 6014	ASCII, PDF	Cryptographic Algorithm Identifier Allocation for DNSSEC	P. Hoffman	November 2010	Updates RFC 4033 , RFC 4034 , RFC 4035	Proposed Standard
RFC 6097	ASCII, PDF	Local Mobility Anchor (LMA) Discovery for Proxy Mobile IPv6	J. Korhonen, V. Devarapalli	February 2011		Informational
RFC 6106	ASCII, PDF	IPv6 Router Advertisement Options for DNS Configuration	J. Jeong, S. Park, L. Beloeil, S. Madanapalli	November 2010	Obsoletes RFC 5006 , Obsoleted by RFC 8106 , Errata	Proposed Standard

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RFC 6116	ASCII , PDF	The E.164 to Uniform Resource Identifiers (URI) Dynamic Delegation Discovery System (DDDS) Application (ENUM)	S. Bradner, L. Conroy, K. Fujiwara	March 2011	Obsoletes RFC 3761	Proposed Standard
RFC 6147	ASCII , PDF	DNS64: DNS Extensions for Network Address Translation from IPv6 Clients to IPv4 Servers	M. Bagnulo, A. Sullivan, P. Matthews, I. van Beijnum	April 2011	Errata	Proposed Standard
RFC 6168	ASCII , PDF	Requirements for Management of Name Servers for the DNS	W. Hardaker	May 2011		Informational
RFC 6186	ASCII , PDF	Use of SRV Records for Locating Email Submission/Access Services	C. Daboo	March 2011	Updates RFC 1939 , RFC 3501	Proposed Standard
RFC 6195	ASCII , PDF	Domain Name System (DNS) IANA Considerations	D. Eastlake 3rd	March 2011	Obsoletes RFC 5395 , Obsoleted by RFC 6895 , Updates RFC 1183 , RFC 3597	Best Current Practice
RFC 6303 part of BCP 163	ASCII , PDF	Locally Served DNS Zones	M. Andrews	July 2011		Best Current Practice
RFC 6304	ASCII , PDF	AS112 Nameserver Operations	J. Abley, W. Maton	July 2011	Obsoleted by RFC 7534	Informational
RFC 6382 a.k.a. BCP 169	ASCII , PDF	Unique Origin Autonomous System Numbers (ASNs) per Node for Globally Anycasted Services	D. McPherson, R. Donnelly, F. Scalzo	October 2011		Best Current Practice
RFC 6394	ASCII , PDF	Use Cases and Requirements for DNS-Based Authentication of Named Entities (DANE)	R. Barnes	October 2011		Informational
RFC 6418	ASCII , PDF	Multiple Interfaces and Provisioning Domains Problem	M. Blanchet, P. Seite	November 2011	Errata	Informational

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RFC 6452	ASCII, PDF	Points and Internationalized Domain Names for Applications (IDNA) - Unicode 6.0	P. Faltstrom, Ed., P. Hoffman, Ed.	November 2011		Proposed Standard
RFC 6471	ASCII, PDF	Overview of Best Email DNS-Based List (DNSBL) Operational Practices	C. Lewis, M. Sergeant	January 2012		Informational
RFC 6535	ASCII, PDF	Dual-Stack Hosts Using "Bump-in-the-Host" (BIH)	B. Huang, H. Deng, T. Savolainen	February 2012	Obsoletes RFC 2767 , RFC 3338 , Errata	Proposed Standard
RFC 6594	ASCII, PDF	Use of the SHA-256 Algorithm with RSA, Digital Signature Algorithm (DSA), and Elliptic Curve DSA (ECDSA) in SSHFP Resource Records	O. Sury	April 2012		Proposed Standard
RFC 6604	ASCII, PDF	xNAME RCODE and Status Bits Clarification	D. Eastlake 3rd	April 2012	Updates RFC 1035 , RFC 2308 , RFC 2672	Proposed Standard
RFC 6605	ASCII, PDF	Elliptic Curve Digital Signature Algorithm (DSA) for DNSSEC	P. Hoffman, W.C.A. Wijngaards	April 2012		Proposed Standard
RFC 6641	ASCII, PDF	Using DNS SRV to Specify a Global File Namespace with NFS Version 4	C. Everhart, W. Adamson, J. Zhang	June 2012		Proposed Standard
RFC 6672	ASCII, PDF	DNAME Redirection in the DNS	S. Rose, W. Wijngaards	June 2012	Obsoletes RFC 2672 , Updates RFC 3363	Proposed Standard
RFC 6698	ASCII, PDF	The DNS-Based Authentication of Named Entities (DANE) Transport Layer Security (TLS) Protocol: TLSA	P. Hoffman, J. Schlyter	August 2012	Updated by RFC 7218 , RFC 7671 , Errata	Proposed Standard

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RFC 6731	ASCII, PDF	Improved Recursive DNS Server Selection for Multi-Interfaced Nodes	T. Savolainen, J. Kato, T. Lemon	December 2012		Proposed Standard
RFC 6742	ASCII, PDF	DNS Resource Records for the Identifier-Locator Network Protocol (ILNP)	RJ Atkinson, SN Bhatti, S. Rose	November 2012	Errata	Experimental
RFC 6762	ASCII, PDF	Multicast DNS	S. Cheshire, M. Krochmal	February 2013	Errata	Proposed Standard
RFC 6763	ASCII, PDF	DNS-Based Service Discovery	S. Cheshire, M. Krochmal	February 2013		Proposed Standard
RFC 6781	ASCII, PDF	DNSSEC Operational Practices, Version 2	O. Kolkman, W. Mekking, R. Gieben	December 2012	Obsoletes RFC 4641 , Errata	Informational
RFC 6804	ASCII, PDF	DISCOVER: Supporting Multicast DNS Queries	B. Manning	November 2012		Historic
RFC 6840	ASCII, PDF	Clarifications and Implementation Notes for DNS Security (DNSSEC)	S. Weiler, Ed., D. Blacka, Ed.	February 2013	Updates RFC 4033 , RFC 4034 , RFC 4035 , RFC 5155 , Errata	Proposed Standard
RFC 6841	ASCII, PDF	A Framework for DNSSEC Policies and DNSSEC Practice Statements	F. Ljunggren, AM. Eklund Lowinder, T. Okubo	January 2013		Informational
RFC 6844	ASCII, PDF	DNS Certification Authority Authorization (CAA) Resource Record	P. Hallam-Baker, R. Stradling	January 2013	Errata	Proposed Standard
RFC 6889	ASCII, PDF	Analysis of Stateful 64 Translation	R. Penno, T. Saxena, M. Boucadair, S. Sivakumar	April 2013		Informational

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RFC 6895 a.k.a. BCP 42	ASCII , PDF	Domain Name System (DNS) IANA Considerations	D. Eastlake 3rd	April 2013	Obsoletes RFC 6195 , Updates RFC 1183 , RFC 2845 , RFC 2930 , RFC 3597	Best Current Practice
RFC 6912	ASCII , PDF	Principles for Unicode Code Point Inclusion in Labels in the DNS	A. Sullivan, D. Thaler, J. Klensin, O. Kolkman	April 2013		Informational
RFC 6927	ASCII , PDF	Variants in Second-Level Names Registered in Top-Level Domains	J. Levine, P. Hoffman	May 2013		Informational
RFC 6944	ASCII , PDF	Applicability Statement: DNS Security (DNSSEC) DNSKEY Algorithm Implementation Status	S. Rose	April 2013	Updates RFC 2536 , RFC 2539 , RFC 3110 , RFC 4034 , RFC 4398 , RFC 5155 , RFC 5702 , RFC 5933 , Errata	Proposed Standard
RFC 6950	ASCII , PDF	Architectural Considerations on Application Features in the DNS	J. Peterson, O. Kolkman, H. Tschofenig, B. Aboba	October 2013		Informational
RFC 6975	ASCII , PDF	Signaling Cryptographic Algorithm Understanding in DNS Security Extensions (DNSSEC)	S. Crocker, S. Rose	July 2013		Proposed Standard
RFC 7043	ASCII , PDF	Resource Records for EUI-48 and EUI-64 Addresses in the DNS	J. Abley	October 2013		Informational
RFC 7050	ASCII , PDF	Discovery of the IPv6 Prefix Used for IPv6 Address Synthesis	T. Savolainen, J. Korhonen, D. Wing	November 2013	Errata	Proposed Standard

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RFC 7085	ASCII, PDF	Top-Level Domains That Are Already Dotless	J. Levine, P. Hoffman	December 2013		Informational
RFC 7129	ASCII, PDF	Authenticated Denial of Existence in the DNS	R. Gieben, W. Mekking	February 2014		Informational
RFC 7216	ASCII, PDF	Location Information Server (LIS) Discovery Using IP Addresses and Reverse DNS	M. Thomson, R. Bellis	April 2014		Proposed Standard
RFC 7218	ASCII, PDF	Adding Acronyms to Simplify Conversations about DNS-Based Authentication of Named Entities (DANE)	O. Gudmundsson	April 2014	Updates RFC 6698	Proposed Standard
RFC 7250	ASCII, PDF	Using Raw Public Keys in Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS)	P. Wouters, Ed., H. Tschofenig, Ed., J. Gilmore, S. Weiler, T. Kivinen	June 2014	Errata	Proposed Standard
RFC 7314	ASCII, PDF	Extension Mechanisms for DNS (EDNS) EXPIRE Option	M. Andrews	July 2014		Experimental
RFC 7344	ASCII, PDF	Automating DNSSEC Delegation Trust Maintenance	W. Kumari, O. Gudmundsson, G. Barwood	September 2014	Updated by RFC 8078	Proposed Standard (changed from Informational March 2017)
RFC 7393	ASCII, PDF	Using the Port Control Protocol (PCP) to Update Dynamic DNS	X. Deng, M. Boucadair, Q. Zhao, J. Huang, C.	November 2014		Informational

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RFC 7477	ASCII, PDF	Child-to-Parent Synchronization in DNS	W. Hardaker	March 2015	Errata	Proposed Standard
RFC 7505	ASCII, PDF	A "Null MX" No Service Resource Record for Domains That Accept No Mail	J. Levine, M. Delany	June 2015		Proposed Standard
RFC 7534	ASCII, PDF	AS112 Nameserver Operations	J. Abley, W. Sotomayor	May 2015	Obsoletes RFC 6304	Informational
RFC 7535	ASCII, PDF	AS112 Redirection Using DNAME	J. Abley, B. Dickson, W. Kumari, G. Michaelson	May 2015		Informational
RFC 7553	ASCII, PDF	The Uniform Resource Identifier (URI) DNS Resource Record	P. Faltstrom, O. Kolkman	June 2015		Informational
RFC 7558	ASCII, PDF	Requirements for Scalable DNS-Based Service Discovery (DNS-SD) / Multicast DNS (mDNS) Extensions	K. Lynn, S. Cheshire, M. Blanchet, D. Migault	July 2015		Informational
RFC 7583	ASCII, PDF	DNSSEC Key Rollover Timing Considerations	S. Morris, J. Ihren, J. Dickinson, W. Mekking	October 2015		Informational
RFC 7585	ASCII, PDF	Dynamic Peer Discovery for RADIUS/TLS and RADIUS/DTLS Based on the Network Access Identifier (NAI)	S. Winter, M. McCauley	October 2015	Errata	Experimental
RFC 7626	ASCII, PDF	DNS Privacy Considerations	S. Bortzmeyer	August 2015		Informational
RFC 7646	ASCII, PDF	Definition and Use of DNSSEC Negative Trust Anchors	P. Ebersman, W. Kumari, C. Griffiths, J. Livingood, R. M...	September 2015		Informational

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RFC 7671	ASCII , PDF	The DNS-Based Authentication of Named Entities (DANE) Protocol: Updates and Operational Guidance	V. Dukhovni, W. Hardaker	October 2015	Updates RFC 6698	Proposed Standard
RFC 7672	ASCII , PDF	SMTP Security via Opportunistic DNS-Based Authentication of Named Entities (DANE) Transport Layer Security (TLS)	V. Dukhovni, W. Hardaker	October 2015		Proposed Standard
RFC 7673	ASCII , PDF	Using DNS-Based Authentication of Named Entities (DANE) TLSA Records with SRV Records	T. Finch, M. Miller, P. Saint-Andre	October 2015		Proposed Standard
RFC 7719	ASCII , PDF	DNS Terminology	P. Hoffman, A. Sullivan, K. Fujiwara	December 2015	Errata	Informational
RFC 7720 a.k.a. BCP 40	ASCII , PDF	DNS Root Name Service Protocol and Deployment Requirements	M. Blanchet, L-J. Liman	December 2015	Obsoletes RFC 2870	Best Current Practice
RFC 7745	ASCII , PDF	XML Schemas for Reverse DNS Management	T. Manderson	January 2016		Informational
RFC 7766	ASCII , PDF	DNS Transport over TCP - Implementation Requirements	J. Dickinson, S. Dickinson, R. Bellis, A. Mankin, D. Wessels	March 2016	Obsoletes RFC 5966 , Updates RFC 1035 , RFC 1123	Proposed Standard
RFC 7793 part of BCP 163	ASCII , PDF	Adding 100.64.0.0/10 Prefixes to the IPv4 Locally-Served DNS Zones Registry	M. Andrews	May 2016		Best Current Practice
RFC 7816	ASCII , PDF	DNS Query Name Minimisation to Improve Privacy	S. Bortzmeyer	March 2016	Errata	Experimental

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RFC 7830	ASCII, PDF	The EDNS(0) Padding Option	A. Mayrhofer	May 2016		Proposed Standard
RFC 7858	ASCII, PDF	Specification for DNS over Transport Layer Security (TLS)	Z. Hu, L. Zhu, J. Heidemann, A. Mankin, D. Wessels, P. Hoffman	May 2016		Proposed Standard
RFC 7871	ASCII, PDF	Client Subnet in DNS Queries	C. Contavalli, W. van der Gaast, D. Lawrence, W. Kumari	May 2016	Errata	Informational
RFC 7873	ASCII, PDF	Domain Name System (DNS) Cookies	D. Eastlake 3rd, M. Andrews	May 2016		Proposed Standard
RFC 7901	ASCII, PDF	CHAIN Query Requests in DNS	P. Wouters	June 2016		Experimental
RFC 7929	ASCII, PDF	DNS-Based Authentication of Named Entities (DANE) Bindings for OpenPGP	P. Wouters	August 2016	Errata	Experimental
RFC 7958	ASCII, PDF	DNSSEC Trust Anchor Publication for the Root Zone	J. Abley, J. Schlyter, G. Bailey, P. Hoffman	August 2016		Informational
RFC 7975	ASCII, PDF	Request Routing Redirection Interface for Content Delivery Network (CDN) Interconnection	B. Niven-Jenkins, Ed., R. van Brandenburg, Ed.	October 2016		Proposed Standard
RFC 7984	ASCII, PDF	Locating Session Initiation Protocol (SIP) Servers in a	O. Johansson, G. Salgueiro, V. Gurbani, D.	September 2016	Updates RFC 3263	Proposed Standard

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RFC 8005	ASCII, PDF	Host Identity Protocol (HIP) Domain Name System (DNS) Extension	J. Laganier	October 2016	Obsoletes RFC 5205	Proposed Standard
RFC 8006	ASCII, PDF	Content Delivery Network Interconnection (CDNI) Metadata	B. Niven-Jenkins, R. Murray, M. Caulfield, K. Ma	December 2016	Errata	Proposed Standard
RFC 8027 a.k.a. BCP 207	ASCII, PDF	DNSSEC Roadblock Avoidance	W. Hardaker, O. Gudmundsson, S. Krishnaswamy	November 2016	Errata	Best Current Practice
RFC 8078	ASCII, PDF	Managing DS Records from the Parent via CDS/CDNSKEY	O. Gudmundsson, P. Wouters	March 2017	Updates RFC 7344 , Errata	Proposed Standard
RFC 8080	ASCII, PDF	Edwards-Curve Digital Security Algorithm (EdDSA) for DNSSEC	O. Sury, R. Edmonds	February 2017	Errata	Proposed Standard
RFC 8094	ASCII, PDF	DNS over Datagram Transport Layer Security (DTLS)	T. Reddy, D. Wing, P. Patil	February 2017		Experimental
RFC 8106	ASCII, PDF	IPv6 Router Advertisement Options for DNS Configuration	J. Jeong, S. Park, L. Beloeil, S. Madanapalli	March 2017	Obsoletes RFC 6106	Proposed Standard
RFC 8109 a.k.a. BCP 209	ASCII, PDF	Initializing a DNS Resolver with Priming Queries	P. Koch, M. Larson, P. Hoffman	March 2017		Best Current Practice
RFC 8145	ASCII, PDF	Signaling Trust Anchor Knowledge in DNS Security Extensions (DNSSEC)	D. Wessels, W. Kumari, P. Hoffman	April 2017		Proposed Standard
RFC 8162	ASCII, PDF	Using Secure DNS to Associate Certificates with Domain Names for S/MIME	P. Hoffman, J. Schlyter	May 2017		Experimental

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RFC 8198	ASCII, PDF, HTML	Aggressive Use of DNSSEC-Validated Cache	K. Fujiwara, A. Kato, W. Kumari	July 2017	Updates RFC 4035	Proposed Standard
RFC 8219	ASCII, PDF, HTML	Benchmarking Methodology for IPv6 Transition Technologies	M. Georgescu, L. Pislaru, G. Lencse	August 2017		Informational
RFC 8222	ASCII, PDF, HTML	Selecting Labels for Use with Conventional DNS and Other Resolution Systems in DNS-Based Service Discovery	A. Sullivan	September 2017		Informational
RFC 8305	ASCII, PDF, HTML	Happy Eyeballs Version 2: Better Connectivity Using Concurrency	D. Schinazi, T. Pauly	December 2017	Obsoletes RFC 6555	Proposed Standard
RFC 8310	ASCII, PDF, HTML	Usage Profiles for DNS over TLS and DNS over DTLS	S. Dickinson, D. Gillmor, T. Reddy	March 2018	Updates RFC 7858	Proposed Standard
RFC 8324	ASCII, PDF, HTML, HTML with inline errata	DNS Privacy, Authorization, Special Uses, Encoding, Characters, Matching, and Root Structure: Time for Another Look?	J. Klensin	February 2018	Errata	Informational
RFC 8427	ASCII, PDF, HTML, HTML with inline errata	Representing DNS Messages in JSON	P. Hoffman	July 2018	Errata	Informational
RFC 8467	ASCII, PDF, HTML	Padding Policies for Extension Mechanisms for DNS (EDNS(0))	A. Mayrhofer	October 2018		Experimental
RFC 8482	ASCII, PDF, HTML	Providing Minimal-Sized Responses to DNS Queries That Have QTYPE=ANY	J. Abley, O. Gudmundsson, M. Majkowski, E. Hunt	January 2019	Updates RFC 1034 , RFC 1035	Proposed Standard
RFC 8483	ASCII, PDF, HTML	Yeti DNS Testbed	L. Song, Ed., D. Liu, P. Vixie, A. Kato, S. Kerr	October 2018		Informational
RFC 8484	ASCII, PDF, HTML	DNS Queries over HTTPS (DoH)	P. Hoffman, P. McManus	October 2018	Errata	Proposed Standard
RFC 8490	ASCII, PDF, HTML	DNS Stateful Operations	R. Bellis, S. Cheshire, J. Dickinson, S. Dickinson, T. Lemon, T.	March 2019	Updates RFC 1035 , RFC 7766	Proposed Standard

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RFC 8499 a.k.a. BCP 219	ASCII , PDF , HTML	DNS Terminology	P. Hoffman, A. Sullivan, K. Fujiwara	January 2019	Obsoletes RFC 7719 , Updates RFC 2308	Best Current Practice
RFC 8501	ASCII , PDF , HTML	Reverse DNS in IPv6 for Internet Service Providers	L. Howard	November 2018		Informational
RFC 8509	ASCII , PDF , HTML	A Root Key Trust Anchor Sentinel for DNSSEC	G. Huston, J. Damas, W. Kumari	December 2018		Proposed Standard
RFC 8552 part of BCP 222	ASCII , PDF , HTML	Scoped Interpretation of DNS Resource Records through "Underscored" Naming of Attribute Leaves	D. Crocker	March 2019	Errata	Best Current Practice
RFC 8553 part of BCP 222	ASCII , PDF , HTML	DNS Attrleaf Changes: Fixing Specifications That Use Underscored Node Names	D. Crocker	March 2019	Updates RFC 2782 , RFC 3263 , RFC 3529 , RFC 3620 , RFC 3832 , RFC 3887 , RFC 3958 , RFC 4120 , RFC 4227 , RFC 4386 , RFC 4387 , RFC 4976 , RFC 5026 , RFC 5328 , RFC 5389 , RFC 5415 , RFC 5518 , RFC 5555 , RFC 5617 , RFC 5679 , RFC 5766 , RFC 5780 , RFC 5804 , RFC 5864 , RFC 5928 , RFC 6120 , RFC 6186 , RFC 6376 , RFC 6733 , RFC 6763 , RFC 7208 , RFC 7489 , RFC 8145	Best Current Practice
RFC 8567	ASCII , PDF , HTML	Customer Management DNS Resource Records	E. Rye, R. Beverly	1 April 2019		Informational
RFC 8586	ASCII , PDF , HTML	Loop Detection in Content Delivery Networks (CDNs)	S. Ludin, M. Nottingham, N. Sullivan	April 2019	Errata	Proposed Standard
RFC 8598	ASCII , PDF , HTML	Split DNS Configuration for the Internet Key Exchange Protocol Version 2 (IKEv2)	T. Pauly, P. Wouters	May 2019		Proposed Standard
RFC 8618	ASCII , PDF , HTML	Compacted-DNS (C-DNS): A Format for DNS Packet Capture	J. Dickinson, J. Hague, S. Dickinson, T. Manderson, J. Bond	September 2019		Proposed Standard
RFC 8624	ASCII , PDF , HTML	Algorithm Implementation Requirements and Usage Guidance for DNSSEC	P. Wouters, O. Sury	June 2019	Errata , Obsoletes RFC 6944	Proposed Standard
RFC 8659	HTML , TEXT , PDF , XML	DNS Certification Authority Authorization (CAA) Resource Record	P. Hallam-Baker, R. Stradling, J. Hoffman-Andrews	November 2019	Errata , Obsoletes RFC 6844	Proposed Standard
RFC 8683	HTML , TEXT , PDF , XML	Additional Deployment Guidelines for NAT64/464XLAT in Operator and Enterprise Networks	J. Palet Martinez	November 2019		Informational
RFC 8749	HTML , TEXT , PDF , XML	Moving DNSSEC Lookaside Validation (DLV) to Historic Status	W. Mekking, D. Mahoney	March 2020	Updates RFC 6698 , RFC 6840	Proposed Standard

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RFC 8764	HTML , TEXT , PDF , XML	Apple's DNS Long-Lived Queries Protocol	S. Cheshire, M. Krochmal	June 2020		Informational
RFC 8765	HTML , TEXT , PDF , XML	DNS Push Notifications	T. Pusateri, S. Cheshire	June 2020		Proposed Standard
RFC 8766	HTML , TEXT , PDF , XML	Discovery Proxy for Multicast DNS-Based Service Discovery	S. Cheshire	June 2020		Proposed Standard
RFC 8767	HTML , TEXT , PDF , XML	Serving Stale Data to Improve DNS Resiliency	D. Lawrence, W. Kumari, P. Sood	March 2020	Updates RFC 1034 , RFC 1035 , RFC 2181	Proposed Standard
RFC 8777	HTML , TEXT , PDF , XML , HTML with inline errata	DNS Reverse IP Automatic Multicast Tunneling (AMT) Discovery	J. Holland	April 2020	Errata , Updates RFC 7450	Proposed Standard
RFC 8806	HTML , TEXT , PDF , XML	Running a Root Server Local to a Resolver	W. Kumari, P. Hoffman	June 2020	Obsoletes RFC 7706	Informational
RFC 8880	HTML , TEXT , PDF , XML	Special Use Domain Name 'ipv4only.arpa'	S. Cheshire, D. Schinazi	August 2020	Updates RFC 7050	Proposed Standard
RFC 8882	HTML , TEXT , PDF , XML	DNS-Based Service Discovery (DNS-SD) Privacy and Security Requirements	C. Huitema, D. Kaiser	September 2020		Informational
RFC 8901	HTML , TEXT , PDF , XML	Multi-Signer DNSSEC Models	S. Huque, P. Aras, J. Dickinson, J. Vcelak, D. Blacka	September 2020		Informational
RFC 8904	HTML , TEXT , PDF , XML	DNS Whitelist (DNSWL) Email Authentication Method Extension	A. Vesely	September 2020		Informational
RFC 8906 a.k.a. BCP 231	HTML , TEXT , PDF , XML	A Common Operational Problem in DNS Servers: Failure to Communicate	M. Andrews, R. Bellis	September 2020		Best Current Practice
RFC 8914	HTML , TEXT , PDF , XML	Extended DNS Errors	W. Kumari, E. Hunt, R. Arends, W. Hardaker, D. Lawrence	October 2020		Proposed Standard

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RFC 8932 a.k.a. BCP 232	HTML , TEXT , PDF , XML	Recommendations for DNS Privacy Service Operators	S. Dickinson, B. Overeinder, R. van Rijswijk-Deij, A. Mankin	October 2020		Best Current Practice
RFC 8945 a.k.a. STD 93	HTML , TEXT , PDF , XML	Secret Key Transaction Authentication for DNS (TSIG)	F. Dupont, S. Morris, P. Vixie, D. Eastlake 3rd, O. Gudmundsson, B. Wellington	November 2020	Obsoletes RFC 2845 , RFC 4635	Internet Standard
RFC 8976	HTML , TEXT , PDF , XML	Message Digest for DNS Zones	D. Wessels, P. Barber, M. Weinberg, W. Kumari, W. Hardaker	February 2021	Errata	Proposed Standard

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