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DNS Top Level Domain Name Classification and Structure

[draft-kim-tld-class-00.txt](#)

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Abstract

This document specifies a structural organization of Internet top level domain names based on the International Schedule of Classes of Goods and Services. This structure intends to provide a framework for classification such that web content providers can differentiate their goods and services and minimize the probability of name confusion and collision. Under each class, as specified by the International Schedule of Classes of Goods and Services, single or multiple top level domain names should be specified each appropriately partitioning the class of goods or service into an appropriate sub-categorization. A method will further be described to incorporate additions/modifications as becomes necessary by as of yet unforeseen future developments.

This document does not address the delegation or the administration of top level domain names which the author feels should be considered separately. However, the author does acknowledge that some form of centralized authority should be in place to properly control the structure to be described.

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1. Introduction

Many new TLDs will soon be created, however, a framework for classification which appropriately limits the scope of TLD names is not yet formally specified. Instances of name space collision in ".com" illustrate the potential of future conflict by TLD names which are not appropriately limited in their scope of application. In other words, TLDs with names which are too general in nature will be a cause of conflict since multiple entities may have an interest in registering similar names under a particular TLD.

A TLD naming system based on the trademark system is in no way novel. In fact, many have independently realized and suggested variations of this approach before. However, a flexible system which 1. maintains a fairly flat structure allowing for short and easily remembered names (the whole purpose behind DNS in the first place), 2. allows for flexibility in the definition of sub-categories and names under goods and service classes as needed, and 3. considers future revisions and modifications, has not been specified to date. The definition of sub-categories is especially important in light of the fact that most Internet related businesses would likely fall under one of the 8 service classes especially class 42: "...services that cannot be placed in other classes [[Int-sched](#)]".

2. The Current System

In the current system, the majority of domain names fall under the TLDs administered by Network Solutions, Inc. of:

.com
.net
.org

These TLDs have been in use for some time. However, conflict from name collision and trademark issues continue as companies desire the same names under a particular TLD. Current TLDs simply do not provide enough granularity in terms of partitioning specific names with categories of goods and services.

A recent proposal by the "IAHC" [Final-report 97] suggests implementation of 7 new top level domain names including:

- .arts
- .rec
- .nom
- .store
- .info
- .firm
- .web

However, the generic nature of some of these domain names and the lack of guidelines for names to appropriately limit scope [suffers from the same problems encountered by the generality of ".com". Future conflict is thus inevitable and a more robust and scalable solution preferred.

3. Proposed Structure

The International Schedule of Classes of Goods and Services is the international standard for trademark. The proposal in this document assumes the right of the trademark holder as a priority in determining the rights to a particular domain name under a particular TLD name space.

Top level domain names should be specified and categorized based on the International Schedule. Each class as defined by the International Schedule should have associated with it a single or multiple top level domain names. Thus multiple TLDs may exist under a single class, unlike in the trademark system. This allows for finer levels of granularity where needed and easily remembered TLD names associated with particular products or services.

Again, each top level domain name would specify a particular subset of goods or service for it's associated class. Thus, for example, class 25 according to the International Schedule covers "Clothing, footwear, headgear". Possible top level domain names under this class could include:

- .cloth - for clothing in general
- .shoe - for footwear
- .caps - for athletic caps

Actually, a more elaborate and formal description of the scope of each top level domain name should be given. However, for the purposes of illustration, the above should be sufficient.

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In a like manner all 34 classes of goods and 8 classes of services should be appropriately partitioned and given appropriately associated TLDs. Further each TLD should have a specific and clearly defined scope of coverage. In other words, ambiguity and overlapping of what goods and services are covered by a TLD should be minimized as much as possible.

In the above example, if it is not clear whether socks fit into ".cloth" or ".shoe" then this should be made concrete by the governing body controlling the definition of these TLDs (more on this governing body in the next section).

A single and complete description of all TLD names under their appropriate class of goods or service should be provided. The author currently keeps a proposed description at "http://www.idns.net" (will be updated regularly). The initial suggestion of TLDs in each class is also included in [Appendix A](#). Again what is provided is a suggestion and even after a formal categorization is constructed future modifications as needed should always be possible.

[4. Coordination and Management of TLD Names and Name Scope](#)

The question now arises how to determine names for each class and how to incorporate new names as the need arises in the future? Ideally some international, governing body consisting of various

members of Internet and trademark bodies could be created and this body could reach a consensus on the categorization and scope of each TLD. This governing body could also deal with disputes.

However, the reality in creating such an organization may be difficult. Also, the current power struggle between various factions vying for control of the TLD name space makes this an issue which will ultimately be decided by the victors of this power struggle.

5. Future Modifications in TLD Name Space

When modifications need to be made in the classification of a TLD or its scope, it may become necessary for some domain name holders to move from one particular TLD to another.

TLD name changes will probably take the following form:

1. the addition of an entirely new TLD which does not conflict with pre-existing TLD names and does not conflict with the scope of coverage of other TLD names within the same class,
2. the change of a particular TLD name to that of another,
3. the creation of a new TLD with some scope "stolen" from other TLDs,
4. the aggregation of 2 or more old TLD names into 1 TLD name, and
5. the splitting of a single TLD name into 2 or more TLDs.

Case 1 should not produce any difficulties.

Case 2 and 3 would require that old TLD name holders will need to change to use the new TLD name. For this case, some kind of a standard grace period should be provided (preferably for at least a year) in which the old TLD remains active. No new registrations would be allowed in the old TLD but eventually after the grace period expires old users would be forced out of the old TLD name space and into the new TLD name space.

Case 3 presents an interesting issue in that if a new TLD name space is created, whether domain name holders under the old TLD be given priority for "generic" names under the new TLD name space. In other words, if someone has a generic name (which implies no trademark protection) such as "cat" or "house" or "sex" does that person have rights to that same name in the new TLD name space? The author's tentative suggestion is to allow old domain name holders rights in the new name space as well.

In Case 4, which seems fairly pathological, there is a contentious point of issue for domain name holders with "generic" domain names. Assuming, this event were to occur (which most likely would never happen) some form of prioritization needs to be established (i.e. whoever registered first, etc.).

Finally case 5, should be similar to case 2 and have the same kind of associated action.

6. Incorporating the IAHC Proposal and NSI TLDs

There are obvious problems with the current IAHC assigned TLD names as well as the current NSI governed TLD names. For example ".store" and ".firm" are too similar and their scope becomes ambiguous in relation to each other and ".web" and ".info" are too general. This is not to mention NSI's ".com" which conveniently covers the entire realm of commercial enterprise. However, if the "IAHC Proposal" is successful with their 7 new TLD names then it would be useful to consider how to incorporate that possible outcome with the suggestions outlined in this document.

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The first step would be to place the 7 new tlds in a particular class as specified by the International Schedule and the second step would be to appropriately limit the scope of the current names. Priority should be given to those who have priority for a certain name given the associated scope of a given TLD as specified.

A tentative suggestion is as follows and is by no means definitive:

class 41. "Education; providing of training; entertainment; sporting and cultural activities [[Int-sched](#)]."

- .arts - libraries; museums; clubs centering around an artistic focus;
- .rec - recreational centers; health clubs; sporting centers; sporting events; other recreational events;
- .nom - "for those wishing individual or personal nomenclature [Final-report 97]"

class 42. "Providing of food and drink; temporary accomodation; medical, hygienic and beauty care; veterinary and agricultural services; legal services; scientific and industrial research; computer programming; services that cannot be placed in other classes [[Int-sched](#)]."

- .info - directory services; Internet searching; white and yellow pages; whois;
- .web - web related advertising firms;
- .store- see below
- .firm- see below

Eventually, .store and .firm should be obsoleted and registrants should be moved (as specified by this document) into appropriate TLDs to be created in the future.

Similar to incorporating IAHC TLDs, the TLDs currently administered by NSI of .com, .org, and .net could also be handled.

class 42

.org- non-profit organizations;
.net- network consultants; isps; web design firms;
.com- should be obsoleted as .store and .firm

As future TLDs are created some of the above listed TLD names can be changed or moved or deleted as per the specification of this document.

7. Acknowledgements

Many people have expressed various ideas about incorporating trademark into the DNS, however, the first real codification of those ideas, and similar to those ideas expressed in this document, came from a now expired IETF draft document by Simon Higgs of Higgs America.

The problems associated with the "IAHC proposal" (as well as a stimulus for writing this document) and their 7 new top level domain names was best described by Donna Hoffman in her article "IAHC'S Seven New Top Level Domains Will Confuse Customers" [Hoffman 97].

8. References

[Int-sched] International Schedule of Classes of Goods and Services

[Final-report 97] Final Report of the International Ad Hoc Committee: Recommendations for Administration and Management of gTLDs

[Hoffman 97] Hoffman, D., "IAHC's Seven New Top Level Domain Names Will Confuse Customers", The COOK Report on Internet, Vol. 6, No. 4/5, 1997.

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Appendix A. Initial Recommendation of TLD Names and Scope

All TLDs should be 3-7 characters in length.

Goods:
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Sub-categorizations for classes is listed with examples listed to the right. Manufacturers of the associated goods described should apply for domain names under the appropriately designated TLD.

Class 1-

.CHEM	chemicals used in industry, science, and photography, as well as in agriculture, horticulture and forestry;
.PLAS	unprocessed plastics
.MANURE	manures
.PRSRV	chemical substances for preserving foodstuffs
.ADHSV	adhesives used in industry

Class 2-

.PAINT paints, varnishes, lacquers; colorants;

Class 3-

.LNDRY bleaching preparations and other substances for laundry use.

.SOAP soaps, perfumery, essential oils, cosmetics, hair lotions.

.CLEAN cleaning, polishing, scouring and abrasive preparations

Class 4-

.OILS industrial oils and greases; lubricants; dust absorbing, wetting and binding compositions; candles, wicks.

.FUEL fuels.

Class 5-

.PHARM pharmaceutical, veterinary and sanitary preparations.

Class 6-

.METAL common metals and their alloys, pipes and tubes of metal; ironmongery, small items of metal hardware; safes; goods of common metal not included in other classes.

.ORE ores.

.WIRE non-electric wires of common metal.

.CABLE non-electric cables of common metal.

Class 7-

.MCHN machines and machine tools; motors and engines

Class 8-

.RAZOR razors

.CUTLRY cutlery; knives

.TOOLS hand tools and implements (hand operated)

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Class 9-

- .INSTR scientific, nautical, surveying, electric, photographic, cinematographic, optical, weighing, measuring, signalling, checking (supervision), life-saving and teaching apparatus and instruments;
- .RECORD apparatus for recording, transmission or reproduction of sound or images; magnetic data carriers, recording discs.
- .VEND automatic vending machines and mechanisms for coin operated apparatus;
- .CASHREG cash registers.
- .CALC calculating machines.
- .COMP data processing equipment and computers.
- .FIREX fire-extinguishing apparatus.
- .NTWK routers, switches and hubs; modems and other network related machinery.

Class 10-

- .SURGI surgical, medical, dental and veterinary apparatus and instruments; artificial limbs, eyes and teeth; orthopedic articles; suture materials

Class 11-

- .LTNG apparatus for lighting.
- .HEATER apparatus for heating.
- .STEAMG apparatus for steam generating.
- .KITCHEN apparatus for cooking, refrigerating, water supply and sanitary purposes.
- .WTRSPPLY apparatus for water supply.
- .VENT apparatus for ventilating.
- .DRYER apparatus for drying.

Class 12-

- .VEHI apparatus for locomotion by land, air, or water

Class 13-

.ARMS firearms; ammunition and projectiles; explosives; fireworks

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Class 14-

.JEWEL jewellery, precious stones;
.WATCH horological and chronometric instruments (wrist based)
.CLOCK horological and chronometric instruments (non wrist based)

Class 15-

.MUSICI musical instruments

Class 16-

.PRINT printed matter; bookbinding materials; printers' type;
printing blocks.
.BRUSH painters brushes.
.PAPER paper, cardboard and goods made from these materials.
.CARD greeting cards; playing cards.
.STNRY stationery.
.TAPE adhesives for stationery or household purposes.
.PHOTO photographs.

Class 17-

.RUBBER rubber, gutta-percha, gum asbestos, mica and goods made
from these materials.
.PIPE flexible pipes, not of metal.
.PACK packing, stopping and insulating materials.
.PLSTC plastics in extruded form for use in manufacture.

Class 18-

.LTHR leather and imitations of leather, and goods made of these

materials and not included in other classes; animal skins ...
.HIDE animal skins, hides.
.SADDLE harness and saddlery
.UMBRLA umbrellas, parasols and walking sticks.
.WHIPS whips.

Class 19-

.BUILD building materials (non-metallic); rigid pipes for building; asphalt, pitch and bitumen; non-metallic transportable buildings; monumetns, not of metal.

Class 20-

.FURN furniture, mirrors, picture frames; goods (not included in other classes) of wood, cork, reed, cane, wicker, horn, bone, ivory, whalebone, shell, amber, mother-of-pearl, meeschaum and substitutes for all these materials, or of plastics.

Class 21-

.HSHLD household or kitchen utensils and containers (not of precious metal or coated therewith); combs and sponges; brushes (except paint brushes); brush-making materials; articles for cleaning purposes; steelwool; unworked or semiworked glass (except glass used in building); glassware, porcelain and earthenware not included in other classes.

Class 22-

.ROPE Ropes, string, nets, tents, awnings, tarpaulins, sails, sacks and bags (not included in other classes); padding and stuffing materials (except of rubber or plastics); raw fibrous textile materials.

Class 23-

.YARN yarns and threads, for textile use.

Class 24-

.TEXTILE textiles and textile goods, not included in other classes; bed and table covers.

Class 25-

.CLOTH clothing in general; socks; caps.

.SHOE shoes; boots; thongs; other types of footwear.

Class 26-

.LACE Lace and embroidery, ribbons and braid;

Class 27-

.CARPET Carpets, rugs, mats and matting, linoleum and other materials for covering existing floors;

.POSTER wall hangings (non-textile)

Class 28-

.GAMES Games and playthings; gymnastic and sporting articles not included in other classes.

.XTREE decorations for Christmas trees.

Class 29-

.MEAT Meat, fish, poultry and game; meat extracts; edible oils and fats.
.????? preserved, dried and cooked fruits and vegetables.
.JELLY jellies, jams, and fruit sauces.
.DAIRY milk and milk products.

Class 30-

.COFFEE Coffee and artificial coffee.
.TEA Tea.
.SUGAR sugar.
.SALT salt.
.RICE rice.
.FLOUR flour.
.BREAD bread.
.PASTRY pastries.
.HONEY honey.
.SPICE spices.
.CONDMNT condiments, sauces, mustard, and ketchup.
.ICE ice

Class 31-

.AGRI agricultural products not included in other classes
.HORTI horticultural products not included in other classes;
plants and flowers.
.FRSTRY forestry products not included in other classes
.ANIMAL live animals
.FRUIT fresh fruits
.VEGE vegetables.
.FEED foodstuffs for animals
.MALT malt

Class 32

.BEER beers
.BEV mineral and aerated waters and other non-alcoholic
 drinks; fruit drinks and fruit juices; syrups and other
 preparations for making beverages.

Class 33

.ALCO Alcoholic beverages (except beers).

Class 34

.TBCO Tobacco; smokers articles; matches.

Services:

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Class 35

.ADS Advertising;
.BUSI Business management; business administration; office
 functions.

Class 36

.INSU Insurance.
.FINA Financial affairs; monetary affairs.
.REAL Real estate affairs.

Class 37

.CONST Building construction.
.REPAIR Repair services
.INSTALL installation services.

Class 38

.TELCO Telecommunications.

Class 39

.TRANS Transport
.SHIP Shipping of goods.
.TRAVEL travel arrangements
.STRAGE Packaging and storage of goods.

Class 40

.MTRLS Treatment of materials.

Class 41

.EDU Education.
.TRAIN providing of training.
.SPORTS Sporting activities.
.CLTRE Cultural activities.

Class 42

.ADLT web sites containing adult/mature material.
.BAR bars.
.MOVIE movie information.
.RESTNT restaurants
.HOTEL hotels.
.MOTEL motels.
.ITV television broadcasting stations, internet related television b
.VIDEO video rental stores.
.MED medical care.
.COSM hygienic and beauty care.
.VET veterinary services.
.AGRIS agricultural services.
.LEGAL legal services.
.RSRCH scientific and industrial research.
.PROG comoputer programming.
.NET network consultants; isps; web design firms.
.ORG non-profit organizations
.NEWS newspapers; news related web sites
.INFO directory services; Internet searching; white and yellow
pages; whois/rwhois.