



BUSINESS GUIDE



Delegation and Name
Server Configuration Guide
Processes for Punycode



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Introduction

In order for an internationalized domain name (IDN) registered with VeriSign to function properly it must be properly delegated to a set of name servers authoritative for the correct version of the IDN. This process is not difficult, but is potentially confusing, so VeriSign has provided this brief document to explain it. There are two steps involved: delegation and name server configuration.

This updated version of the configuration guide deals with the deployment of the IDN-related Requests for Comment (RFCs). This document describes the steps for Punycode (xn--) delegation and configuration.

Punycode Step 1: Delegation

Just as with traditional ASCII-only domain names, an IDN must be properly delegated to function correctly. A registrant must contact his or her registrar to specify name servers that the IDN should be delegated to. The process of specifying name servers for a domain varies by registrar (for example, filling out a Web form, sending an electronic form via email, etc.), but it's important to note that this process is no different for an IDN than it is for a traditional ASCII-only domain name.

For example, consider the IDN, which has the Punycode representation *xn-fsqt3if6h.com*. The registrant wants this IDN to be delegated to four name servers: *l4.nstld.com*, *a4.nstld.com*, *f4.nstld.com*, and *g4.nstld.com*. The registrant communicates this request to his or her registrar using the standard process set forth by that registrar to specify name servers for a domain. When communicating with a registrar to specify these name servers, the registrant may refer to the IDN in its unicode or some other encoding. However, all communication between the registrar using Punycode and VeriSign uses the Punycode representation of the IDN. In addition, queries to both the registrar's and the VeriSign WHOIS servers must use the Punycode representation. After the registrar has processed the registrant's request to add the four name servers, a query to the VeriSign WHOIS produces this output:

```
$ whois -h whois.nsiregistry.net xn-fsqt3ifh6.com
Whois Server Version 1.3
Domain names in the .com and .net domains can now be registered
with many different competing registrars. Go to http://www.internic.net
for detailed information.
Domain Name: XN-FSQT3IFH6.COM
Registrar: NETWORK SOLUTIONS, INC.
Whois Server: whois.networksolutions.com
Referral URL: http://www.networksolutions.com
Name Server: L4.NSTLD.COM
Name Server: A4.NSTLD.COM
Name Server: F4.NSTLD.COM
Name Server: G4.NSTLD.COM
Updated Date: 18-jun-2001
```

>>> Last update of whois database: Tue, 19 Jun 2001 02:12:04 EDT <<<
The Registry database contains ONLY .COM, .NET, .EDU domains and Registrars.

With the name servers for the IDN specified, we now proceed to configuring these name servers to make them authoritative for the appropriate zone.

Punycode Step 2: Name Server Configuration

When a traditional ASCII-only domain, such as `verisign.com`, is delegated to a set of name servers, those name servers must be configured to be authoritative for the zone corresponding to the exact domain name registered, e.g., `www.verisign.com` in this case. For Punycode registrations, the same is true. Continuing with the example IDN above, the zone data file for this IDN on the zone's Multilingual Domain Name Registration primary master name server looks like this:

```
xn-fsqt3ifh6.com. IN SOA a4.nstld.com. hostmaster.nsiregistry.net. (
2001061800 3600 600 604800 600 )
xn-fsqt3ifh6.com. NS a4.nstld.com.
xn-fsqt3ifh6.com. NS f4.nstld.com.
xn-fsqt3ifh6.com. NS g4.nstld.com.
xn-fsqt3ifh6.com. NS l4.nstld.com.
xn-fsqt3ifh6.com. A 192.153.247.22
www.xn-fsqt3ifh6.com. CNAME xn-fsqt3ifh6.com.
```

If the primary master name server is running a BIND version 8 or version 9 name server, the zone statement in the name server's `named.conf` file for this zone would look something like this:

```
zone "xn-fsqt3ifh6.com" {
    type master;
    file "db.xn-fsqt3ifh6.com";
};
```

If the primary master is instead running a BIND version 4 name server, the `primarydirective` in the name server's `named.boot` file for this zone would look something like this:

```
primary xn-fsqt3ifh6.com db.xn-fsqt3ifh6.com
```



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