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VeriSign Registry Registrar Protocol (RRP) Version 2.0.0

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Abstract

This document updates version 1.1.0 of the Network Solutions Inc. (NSI) Registry Registrar Protocol (RRP) specified in RFC 2832. The changes described in this document combined with the base specification documented in RFC 2832 specify version 2.0.0 of the VeriSign Registry Registrar Protocol.

Table of Contents

1. Introduction

The Network Solutions, Inc. (NSI) Registry Registrar Protocol (RRP) was developed by NSI in 1998 and 1999 to allow multiple registrars to provide second level Internet domain name registration services in the top level domains (TLDs) administered by the NSI TLD registry. Version 1.1.0 of the NSI RRP was published as Informational RFC 2832 [2] in May 2000. This document describes changes to RFC 2832 that specify version 2.0.0 of the protocol.

Conventions Used In This Document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14, RFC 2119 [1].

In examples, "C:" represents lines sent by a protocol client and "S:" represents lines returned by a protocol server.

2. Protocol Updates

This specification describes several modifications to RFC 2832 [2]: two new response codes have been added, domain TRANSFER command processing has been updated to allow a client to cancel a requested domain transfer, and support for IPv6 name server addresses has been added.

2.1. Response Codes

Section 5.1 of RFC 2832 [2] has been updated to include two additional error response codes.

510 Invalid encoding

The value of a domain name or name server entity contains invalid ASCII compatible encoding used to represent an internationalized domain or host name. The encoding is checked and verified in two situations: when registering an internationalized domain name or name server name, and when changing the name of a name server and the new name of the server is internationalized.

Section 5.2 of RFC 2832 [2] has been updated to include response code 510 as a possible error value returned from the ADD command:

Command: ADD
Success: 200, 220
Failure: 420, 421, 500, 502, 503, 504, 505, 507, 508, 510, 520, 531, 535, 540, 541, 545, 546, 547, 549, 550, 554

557 Name server locked

An attempt has been made to modify or delete a name server that is hosting a TLD in the root zone. Modifications to the root zone can only be made with the approval of the U.S. Department of Commerce and IANA, so if the registrar absolutely needs to modify or delete such a name server, the action needs to be coordinated through the registry operator using an out-of-band communications channel.

Section 5.2 of RFC 2832 [2] has been updated to include response code 557 as a possible error value returned from the DEL and MOD commands:

Command: DEL
Success: 200, 220
Failure: 420, 421, 500, 502, 503, 504, 505, 507, 508, 520, 531, 532, 533, 541, 544, 545, 547, 549, 551, 552, 553, 557

Command: MOD
Success: 200, 220
Failure: 420, 421, 500, 502, 503, 504, 505, 507, 508, 510, 520, 531, 535, 540, 541, 542, 543, 544, 545, 547, 549, 550, 551, 552, 553, 557

2.2. TRANSFER Command Update

Section 4.3.10 of RFC 2832 [2] has been updated to include an additional TRANSFER command processing option.

Old text:

Authorized User: All registrars MAY use the TRANSFER command to request the transfer of registration service authority to the requesting registrar. Only the current sponsoring registrar of a domain name may explicitly approve or reject a requested transfer. The registry MAY implicitly approve or reject requested transfers after a fixed amount of time.

New text:

Authorized User: All registrars MAY use the TRANSFER command to request transfer of registration service authority to the requesting registrar. Only the current sponsoring registrar of a domain name may explicitly approve a requested transfer. The current sponsoring registrar MAY explicitly reject a requested transfer. The registry MAY implicitly approve or reject requested transfers after a fixed amount of time. The requesting registrar MAY cancel a pending request, but the request to cancel the transfer MUST be sent before it has been explicitly approved or rejected by the current sponsoring registrar or it has been implicitly approved or rejected by the registry.

Example:

A registrar cancels a previously requested domain transfer:

```
C:transfer<crlf>
C:-Approve:No<crlf>
C:EntityName:Domain<crlf>
C:DomainName:example.com<crlf>
C:.<crlf>
S:200 Command completed successfully<crlf>
S:.<crlf>
```

2.3. IPv6 Name Server Addresses

Section 7 of RFC 2832 [2] has been updated to include support for name servers using IPv6 addresses. IPv6 addressing architecture is described in RFC 3513 [3]. This ABNF [4] grammar supplements the grammar defined in RFC 2832.

```
; Lexical Tokens

hexdigit = digit / %X41-46 / %x61-66   ; 0-9 / A-F / a-f

doubleoctet = 1*4hexdigit

docolon = doubleoctet colon

colondo = colon doubleoctet

ip-address =  ip-address-v4 / ip-address-v6

; ipv4 addresses
ip-address-v4 = 1*3digit dot 1*3digit dot 1*3digit dot 1*3digit
```

```
   ip-address-v6 =  ip-address-v6-standard / ip-address-v6-compressed
   ; Standard form of IPv6 addresses
   ; 8 hexdigit strings of length 1-4 separated by colons
   ;
   ; Eg: 10AA:0:0:00:8:800:200C:417A

   ip-address-v6-standard = doubleoctet 7colondo

   ; Compressed form of IPv6 addresses
   ; Runs of zero-value octets are represented by '::'
   ;
   ; Examples:
   ;       ::                          ==> 0:0:0:0:0:0:0:0
   ;
   ;       1::                         ==> 1:0:0:0:0:0:0:0
   ;       2:2::                       ==> 2:2:0:0:0:0:0:0
   ;       7:7:7:7:7:7:7::             ==> 7:7:7:7:7:7:7:0
   ;
   ;       ::1                         ==> 0:0:0:0:0:0:0:1
   ;       ::2:2                       ==> 0:0:0:0:0:0:2:2
   ;       ::7:7:7:7:7:7:7             ==> 0:7:7:7:7:7:7:7
   ;
   ;       E::1                        ==> E:0:0:0:0:0:0:1
   ;       E::2:2                      ==> E:0:0:0:0:0:2:2
   ;       E::6:6:6:6:6:6              ==> E:0:6:6:6:6:6:6
   ;
   ;       E:E::1                      ==> E:E:0:0:0:0:0:1
   ;       E:E::2:2                    ==> E:E:0:0:0:0:2:2
   ;       E:E::5:5:5:5:5              ==> E:E:0:5:5:5:5:5
   ;
   ;       E:E:E::1                    ==> E:E:E:0:0:0:0:1
   ;       E:E:E::2:2                  ==> E:E:E:0:0:0:2:2
   ;       E:E:E::4:4:4:4              ==> E:E:E:0:4:4:4:4
   ;
   ;       E:E:E:E::1                  ==> E:E:E:E:0:0:0:1
   ;       E:E:E:E::2:2                ==> E:E:E:E:0:0:2:2
   ;       E:E:E:E::3:3:3              ==> E:E:E:E:0:3:3:3
   ;
   ;       E:E:E:E:E::1                ==> E:E:E:E:E:0:0:1
   ;       E:E:E:E:E::2:2              ==> E:E:E:E:E:0:2:2
   ;
   ;       E:E:E:E:E:E::1              ==> E:E:E:E:E:E:0:1

   ip-address-v6-compressed =  colon colon
   ip-address-v6-compressed =/ 1*7docolon colon
   ip-address-v6-compressed =/ colon 1*7colondo
   ip-address-v6-compressed =/ docolon 1*6colondo
   ip-address-v6-compressed =/ 2docolon 1*5colondo
```

```
ip-address-v6-compressed =/ 3docolon 1*4colondo
ip-address-v6-compressed =/ 4docolon 1*3colondo
ip-address-v6-compressed =/ 5docolon 1*2colondo
ip-address-v6-compressed =/ 6docolon colondo
```

3. Internationalization Considerations

This document does not introduce any internationalization considerations that are not already documented in RFC 2832 [2].

4. IANA Considerations

This document does not introduce any IANA considerations that are not already documented in RFC 2832 [2].

5. Security Considerations

This document does not introduce any security considerations that are not already documented in RFC 2832 [2].

6. Acknowledgements

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7. Normative References

[1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[2] Hollenbeck, S. and M. Srivastava, "NSI Registry Registrar Protocol (RRP) Version 1.1.0", RFC 2832, May 2000.

[3] Hinden, R. and S. Deering, "Internet Protocol Version 6 (IPv6) Addressing Architecture", RFC 3513, April 2003.

[4] Crocker, D., Ed. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", RFC 2234, November 1997.

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