



NEUSTAR REGISTRAR REFERENCE GUIDE

October 11, 2013

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1 Introduction

1.1 Background

Welcome to the *Neustar Registrar Reference Guide*. As the leading Registry Services Provider for some of the most exciting Top Level Domains (TLDs), Neustar is committed to making the launch of every new TLD a success. Neustar has been involved with the development, implementation and management of domain names since 2000 and we are looking forward to this new era of growth and innovation in the industry.

Although new Registry Operators will utilize their new namespaces in unique and dynamic ways, some traditional rules for the domain name industry still apply. Similarly, although Neustar's core platforms (SRS, WHOIS, DNS, etc) will operate very much like how the systems operate today for existing Top Level Domains, the new TLDs do introduce new functionality or processes required in the new registry agreements.

Whether you are working with Neustar for the first time or are an existing Registrar who has been working with us for years, the goal of this document is to provide information on what to expect from Neustar as the backend Registry Services Provider.

1.2 Purpose

The *Registrar Reference Guide* is a source reference that provides information needed to connect to and manage Top Level Domains at Neustar. It includes the following topics:

- Registrar On-boarding
- Testing and Production Environments
- Documentation and Tools
- SRS Business Rules
- Whois Service
- Reporting
- Billing and Payment

1.3 Audience

This guide is intended for Registrars that are interested in managing TLDs where Neustar is the Registry Services Provider. Because the terminology often gets confusing, we provide the following definition and distinction between the Registry Operator and the Registry Services Provider:

- **Registry Operator:** The entity entering into the Registry Agreement with ICANN, responsible for setting up and maintaining the operation of the registry.

- **Registry Services Provider:** The entity providing Registry Services on behalf of the Registry Operator. For purposes of this document, Neustar shall serve as the Registry Services Provider .

1.4 Additional Documentation

This document provides some general information on Registrar on-boarding along with steady-state operations. Neustar has developed supplements to provide additional information to development teams or to detail certain launch phases in more detail. Those supplements include:

- Sunrise First Come, First Served Sunrise Supplement
- Sunrise Multi-Application Sunrise Supplement
- Landrush Supplement
- General Availability Supplement

1.5 Customer Support

Neustar provides dedicated 24-hour Customer Support seven days a week, 365 days a year. The Customer Support Representatives (CSR) can answer registrar inquiries and provide first-level support for:

- Technical Troubleshooting
- Technical Certification
- EPP, SCP and Registrar report services
- Payments and Billing
- Registrar Account Profile Maintenance

Customer Support works closely with our internal Registry team as well as our external Registry Operator partners to help resolve your questions. We maintain a trouble ticketing and service request tracking system to help manage and optimize the process.

This *Registrar Reference Guide* is provided to assist you to manage domain names with Neustar. Should you have any questions as you go through the process of becoming a Registrar, on-boarding a new TLD or just operational questions in general, please contact a member of Neustar’s team for assistance.

Group	Telephone	Email	Facsimile
Customer Support	+1 571 434-5300	reg-support@neustar.biz	+1.571.434.5758
Billing Support	+1 571 434-5662	registry-billing@neustar.biz	+1.571.434.5786

2 Registrar On-Boarding

2.1 Overview

Neustar strived to make the on-boarding process for new TLDs as efficient and effective as possible. Existing registrars will find a more streamlined approach to on-boarding new TLDs to help expedite the time to market. For example, Neustar does not require Registrars to sign an additional agreement in order to on-board a new TLD.

Prior to starting the Neustar on-boarding process, a Registrar must first be accredited by the Corporation for Assigned Names and Numbers (ICANN). Information on the ICANN accreditation process can be found [here](http://www.icann.org/en/resources/registrars/accreditation):

<http://www.icann.org/en/resources/registrars/accreditation>.

Next, each Registry Operator will be responsible for entering into Registry-Registrar Agreements with each Registrar prior to allowing them to register domain names in their respective top-level domains (TLDs). Once a prospective Registrar has entered into an RRA with the Registry Operator and has passed all other screening and qualifications required by the Registry Operator, the Registry Operator will notify Neustar that a Registrar has been accredited. Upon such notification, the Neustar Customer Experience Team will contact the Registrar to begin the on-boarding process with Neustar.

The Neustar on-boarding process follows five easy steps:

- Step 1. Complete Required Documentation (New Registrars)
- Step 2. Develop your systems
- Step 3. Test in OT&E
- Step 4. Fund your account (New Registrars)
- Step 5. Access the Production Environment

2.2 Step 1. Complete Required Documentation

Neustar does not require Registrars to sign an additional agreement on top of the Registry-Registrar Agreement that they sign with the Registry Operator. For Registrars that are not already connected to Neustar, there are some forms that the Registrar needs to complete in order to establish accounts in our system. The necessary forms are available online from Neustar Customer Support by contacting them at reg-support@neustar.biz.

Neustar will provide a Registrar Information Package that contains several documents (listed below) that must be completed and returned to the Customer Experience Team.:

- *Registrar Information Form*. This form is used to provide the business data necessary to establish the Registrar's account within the Neustar system.
- *Registrar Profile Form*. This form is used to establish a billing account within the Neustar system.

Note that no fees are charged to obtain and use the Registrar Technical Guides, EPP service, utility software, and OT&E and Production environments.

2.3 Step 2. Develop Your Systems

Neustar provides you the technical documentation and tool kit to help develop your Extensible Provisioning Protocol (EPP) and Secure Copy Service (SCP) clients. Neustar's Developers' Guide provides more detailed information to assist the Registrar in developing the EPP client. The Developer's Guide consists of the following:

- Software which allows you to interface with the SRS/EPP.
- Information to assist in developing APIs to interface with SRS.
- Instruction on technical certification (new Registrars only)
- Information about the testing and production environments

The toolkit contains instructions for building your EPP client and includes a “dummy” server that runs locally within your environment. Neustar provides technical support throughout your OT&E testing, integration testing, and turn-up to Production EPP client. Please contact Customer Support if you need assistance.

2.4 Step 3. Test in OT&E

2.4.1 OT&E Overview

Neustar operates Operational Test & Evaluation (OT&E) environments to enable Registrars to test their systems. Neustar created standard OT&E environments to account for the different phases of the launch and operation of the various TLDs. Said another way, there is not a unique OT&E environment per TLD, but rather 'generic' OT&E environments that are mapped to the different cycles of the launch of a new TLD. TLDs that follow the same business rules will utilize these shared OT&E environments for testing. Neustar has currently identified 5 environments that will be available for testing:

As Registry Operators further define their Registry Operator-specific business rules, additional environments may become necessary. Neustar does not require that existing registrars 'certify' in the OT&E environments. However, we recommend new registrars exercise the opportunity to verify the operational efficiency of their EPP with Neustar systems. The use of our OT&E allows this capability with no financial impacts to the Registrar.

Table 1 OT&E Environment Information

OT&E Environment	Phase	Description
1	Sunrise-FCFS	First Come, First Served. A domain name is awarded to the first qualified Sunrise applicant that successfully applies for a domain name within the TLD.
2	Sunrise-Multi	This environment is for those TLDs for which there are multiple applicants for an individual domain name within the TLD during the Sunrise Period (ex. Auction).
3	Landrush (with Claims)	This environment is intended for TLDs that launch their General Availability of domain names beginning with a non First-Come First-Served model (ex. Auction). All domain names registered during Landrush are required to go through the Trademark Claims notification process.
4	GA Claims	This General Availability environment is designed to test the Trademark Claims notification process interaction with the Registry Services Provider and the Registrars
5	General Availability	GA environment that does not include the claims notification process

2.4.2 OT&E Policies and Requirements

OT&E is an integrated environment that uses a scaled-down version of the Production SRS with an operational database and application server. This is where Registrars can test and refine their client applications prior to entering the Production environment. It should be noted that the new Registrar is welcome to establish access to OT&E so that they may use the OT&E to build their EPP Client.

The OT&E integration environment provides an application server with full business rules and an operational SRS database. The Registrar can use this environment to test and tune front-end EPP and scripted clients against a fully functional SRS/EPP application server.

OT&E transactions will create actual domains, hosts and contacts in the database. Unlike the production environment, operations in the OT&E do not generate billing transactions and do not update the DNS and Whois. The data stored in the OT&E database will be retained for a limited time.

The Registrar can request access to the OT&E environment any time after entering into an RRA with the Registry Operator

- The Registrar will need to obtain and install separate OT&E digital certificates for the EPP real-time service and the SCP service
- Each Registrar is permitted; a minimum of two (2) concurrent connections to the OT&E. Dual connections allow you to verify that your applications properly handle concurrency issues.
- Each Registrar is limited to activities associated with 1,000 domains, 1,000 contacts, and 1,000 hosts per day.
- Load Testing is not permitted in the OT&E integration environment.
- The OT&E database is shared among all Registrars. We recommend that you prefix all domains and contact handles with the first four (4) characters of your company name, as specified in the Registry-Registrar Agreement. This will prevent conflicts.

2.5 Step 4. Fund your account

For Registrars that are new to Neustar, we will provide credentials to access and fund your Registrar account. Funding the Registrar account enables the Registrar to conduct billable transactions in the SRS. More details on billing are provided in Section 7 (Payments).

2.6 Step 5. Access The Production Environment

Access to the production environment is the final step to becoming an active registrar. The Shared Registry System (SRS) production environment provides online EPP order entry for registration of domain names, host nameservers, and contact information. Operations in the EPP production environment update the SRS database of record, generate billing transactions, and generate updates to the Domain Name System (DNS) and WHOIS services. Registrar Reports will be generated and made available via the Secure Copy (SCP) Server. The required SLAs are applicable to the SRS production environment.

Each TLD will have a unique production environment for each phase of launch. Neustar will provide credentials to Registrars to access the TLD production environment.

Neustar operations controls access to the production environment through several different mechanisms:

- User Name and Password Credentials
- Digital Certificates
- IP Access Controls
- Connection Management

The following section describes the final steps for obtaining access to the production environment, and describes each of the access controls in more detail.

2.6.1 Accessing SRS Production

In order to access the SRS Production environment, the Registrar must perform the following steps:

1. Obtain client certificate from one of the Certificate Authorities in Appendix A.
2. Send EPP Client subnet addresses or unique IP addresses to the Registry. Utilize the form that is available in your Toolkit or contact the Customer Support team.

Following the completion of the previous steps, the Registry will send you the SRS Production environment credentials. These include:

- Registrar SRS Production user ID and password
- Host name and TCP port numbers of the Registry SRS Production Server
- Server Certificate

Neustar will configure its Firewall to pass your client IP address.

The Registrar ID, host name, port numbers and digital certificate files will be sent via email; your user ID and password information will be sent separately. Please install the newly acquired certificates in your trusted certificate store. You are now ready to connect to the SRS Production environment.

3 Nameserver and Subnet Policy

The following are general guidelines for nameservers, specific rules for host names, and specific rules for IP addresses used in nameserver records.

3.1 General Guidelines for Nameservers

- Each domain name record is required to have at least two (2) nameservers to be active in the Registry Operator's DNS zone file.
- The maximum number of nameservers for any domain name is thirteen (13) servers.
- Neustar will require nameserver host names for *all* domains in the zone file.
- Glue records (commonly referred to as "A records") will be required for all nameserver host names that reside in the TLD.
- Glue records (commonly referred to as "A records") will NOT be required for nameserver host names residing outside the TLD.
- The Registrar who manages the parent domain of the nameservers maintains nameserver records at the Registry SRS.
- Nameserver records can be transferred to another Registrar during the process of a Registrar transfer.
- A nameserver record cannot be deleted if it is associated with active domain names. The domain names must be updated or removed from the Registry SRS before the host is deleted. Those servers that may be controlled by another Registrar can be renamed, as an out of zone host, to allow the nameserver deletion to complete.

3.2 Host Names

- Nameserver host names must be valid hostnames per RFC 1035.
- Complete host name (including domain and TLD) cannot exceed 67 characters.
- Host names cannot begin or end with a hyphen.
- Host names should only contain letters, numbers and hyphens.
- Nameservers for a parent domain can be created at the same time the domain is registered.
- Nameservers cannot be inserted under a non-existent domain (e.g., if *EXAMPLE.TLD* is not registered, then *NS1.EXAMPLE.TLD* cannot be inserted as a host).
- Host names cannot contain special characters (! @ # \$ % ^ & * () <> ? : " { } ~).
- Host names must be unique in the Registry SRS database.

3.3 IP Addresses of Nameservers

Nameservers within the zone of the Registry SRS (i.e., ending in the TLD of the Registry) must have a minimum of one (1) and a maximum of thirteen (13) IP addresses. Nameservers not in the zone of the registry do not have IP addresses.

The IP addresses must be a valid IPv4 or IPv6 addresses.

3.4 Registrar IP Subnet Policy

This policy establishes the number of connections per Registrar that Neustar will accept in Production and OT&E for each of the TLDs.

3.4.1 Production

Within the Production environment, Neustar allows a maximum of two (2) /27 subnets (64 IP addresses) for connecting to each of the TLDs. These subnets will have a minimum of two (2) connections per Registrar per TLD available for use. A Registrar is not required to utilize all the connections. A Registrar who feels a need to have more connections per subnet should send a written request to Neustar and justify the reasons behind the additional requirement; Neustar reserves the right to provide additional connections for the requesting Registrar.

Registrars acting as the primary connection point for several secondary Registrars will be required to provide unique IP addresses and subnets for each secondary Registrar who requires connections. If the primary Registrar utilizes one IP subnet pair between itself and Neustar, they will have only one set of connections per IP subnet pair.

3.4.2 OT&E

Within the OT&E environment, each Registrar has testing and workspace capabilities for troubleshooting in the OT&E environment. OT&E is connected by two (2) /27 subnets per Registrar with a minimum of **two (2)** connections to Neustar systems.

3.4.3 General Subnet Rules

Servers that are authorized to contact the Shared Registration System (SRS) must specify:

- A maximum of two (2) subnets
- A maximum of 64 IP addresses between the two subnets (not less than a /26 range)
- Subnets must be specified in “dotted quad and length” (CIDR) format as 100.101.102.0/27
- Examples of acceptable subnet/address formats are:
 - One subnet of 64 hosts (e.g., 100.101.102.0/26)
 - Two subnets of 32 hosts or less (e.g., specify 32 addresses on one network as 100.101.102.0/27 [addresses 100.101.102.0 through 100.101.102.31] and 32 addresses on a second network as 102.101.100.32/27 [addresses 102.101.100.33 through 102.101.100.62])
 - No ranges above /25 will be accepted
 - Please note that specified subnets must not cross bit boundaries. For example, a subnet specified as 100.101.102.1/27 is not acceptable. The following table defines the bit boundaries related to the number of hosts allowed:

Table 2 Bit Boundaries

Bit Boundaries	Allowed Hosts	Boundaries
/26	64	0, 64, 128, 192
/27	32	0, 32, 64, 96, 128, 160, 192, 224
/28	16	0, 16, 32, 48, 64, 80, 96, 112, 128, 144, 160, 176, 184, 192, 200, 208, 224, 240
/29	8	0, 8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96, 104, 112, 120, 128, 136, 144, 152, 160, 168, 176, 184, 192, 200, 208, 216, 224, 232, 240, 248
/30	4	0, 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 92, 96, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 144, 148, 152, 156, 160, 164, 168, 172, 176, 180, 184, 188, 192, 196, 200, 204, 208, 212, 216, 220, 224, 228, 232, 236, 240, 244, 248, 252

Bit Boundaries	Allowed Hosts	Boundaries
/31	2	0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254
/32	1	1 through 256

Any changes to the Registrar Client Subnets MUST be coordinated through Neustar Customer Support prior to any changes within the Registrar’s systems. You should allow at least two (2) business days for the IP/Subnet changes to be completed.

4 Secure Copy (SCP) Service

The SCP service is used to download Registry SRS reports. The available Registry SRS reports are covered in the following section (Section 5). The SCP software you will use depends on your operating environment, as shown below.

Table 3 SCP Software

O/S	Software
Unix	SSH/SCP
MS Windows	Cygwin SCP

4.1 Directory Structure

The SCP server contains a directory for each registrar. (Your directory is named using the SCP User ID provided to you by Neustar Customer Support). In your directory, you will find the following subdirectories:

srsreports/ Used the SRS to post standard reports associated with operations, billing, and inventory. It consists of the following subdirectories:

operational/

daily/

transaction/ - read

transfer/ - read

monthly/

transaction/ - read

inventory/ - read

4.2 SSH/SCP Commands

The SCP server is a protected server, which means:

- You have access only to certain directories.
- You can only run a non-interactive shell on the SCP server.
- You are restricted to a limited range of shell commands.

5 Reports

Registrars are provided with various reports to assist with the management of domain, contact, and host records within the Registry SRS. These reports contain data for Registrar's domain name transactions, domain name and nameserver administration, Registrant administration, billing statements, and payment processing details. The reports are deposited on an SCP server, where each Registrar is provided with a dedicated account. Instructions for accessing the SCP site, along with assignment of credentials, can be obtained by contacting Customer Support reg-support@neustar.biz. To receive these reports, Registrars MUST subscribe to each of them via the Registrar Administrative Tool (RAT). The reports are then accumulated daily, and produced at the end of the processing cycle. The reports are inclusive from 00:00 to 23:59 UTC of the previous day.

The following reports will be available:

- Daily Transaction Report (XML)
- Monthly Transaction Report (XML)
- Weekly Escrow Report (XML)
- Daily Transaction Report (csv)
- Daily Billable Transaction Report (csv)
- Daily Transfer Report – Gaining (csv)
- Daily Transfer Report – Losing (csv)
- Weekly Nameserver Report (csv)
- Expiring Domains Report (csv)
- Financial Reports

5.1 Daily Transaction Report

The Daily Transaction Report captures the results of processing files for a single day's activities. The results are formatted as XML documents (using XML UTF-8 format).

This report provides the Registrar with a detailed inventory of all domains under the Registrar's management, and is grouped by Registrant and sorted by EPP business request. It contains XML tags and values that hold all Add, Delete, Modify and Renew for domains, contacts and nameservers sent to the Registry SRS on the previous day. The Daily Transaction Report is produced as one (1) report per Registrar. It is accumulated daily, and is produced at the end of processing cycle. It includes transactions from 00:00 to 23:59 UTC of the day of the report. The report filename format is <ccid>_a2_<YYYYMMDD>.xml, where:

- **ccid** = Registry-assigned Common Customer ID
- **YYYY** = four-digit year
- **MM** = two-digit month
- **DD** = two-digit date

The date stamp in the filename indicates the date of the data that is represented. The body of the report displays the following information:

- Registrant (grouped by)
- EPP Request (sorted by create, modify, delete, transfer, renew)
- Domain Name (sorted by)
- Domain Name Unique ID
- Domain Name Status
- Nameservers (Up to 13)
- Registered on date
- Period
- Expires on date

The report summary contains the Total Domains, along with the average domains per Registrant.

5.2 Monthly Transaction Report

The Monthly Transaction Report provides the Registrar with a detailed inventory of all domains under management up to the last day of the month being reported. The domains are grouped by Registrant, and sorted by EPP business request. The results are formatted as XML documents, using XML UTF-8 format. This report is produced at the end of the month during the processing cycle up to 23:59 UTC of the day of the report.

The Monthly Report contains all of the domain names managed by the Registrar. The Registrar ID, Registrar Name, and Date are used as the header of the report. The report filename format is **<ccid>_a3_<YYYYMMDD>.xml**, where:

- **ccid** = Registry-assigned Common Customer ID
- **YYYY** = four-digit year
- **MM** = two-digit month
- **DD** = two-digit date

The date stamp in the report filename indicates the first day of the month that the data contained in the report represents. The following elements are found within the body of the report:

- Registrant (grouped by)
- Domain Name (sorted by)
- Domain Name Unique ID
- Domain Name Status
- Nameservers (up to 13)
- Registered on date
- Period
- Expired on date

The report summary contains the total domains, all the domains added for the reporting month and the average domains per Registrant.

5.3 Registrar Escrow

The Registrar Escrow Report is a weekly inventory report file in XML format that is generated and sent to the secure SCP server. The file contains all domains, contacts and nameservers that are in the SRS databases for a Registrar.

The filename format is <ccid>_a6_<YYYYMMDD>.xml, where:

- ccid = Registry-assigned Common Customer ID
- YYYY = four-digit year
- MM = two-digit month
- DD = two-digit date

The date stamp in the filename represents the date that the file was generated.

5.4 Daily Transaction Report (csv)

The Daily Transaction Report is delivered to the Registrar SCP account daily by 0800UTC. This csv formatted report includes all the write transactions submitted by a Registrar during the reporting period. The transaction types include:

- Creates
- Updates
- Deletions
- Renewals
- Transfers for domains, hosts, and contact objects

The following data is included in the report:

- Registrar Name
- Registrar ID
- Transaction Type (i.e., create, update, delete, etc)
- Object type (domain, host, contact)
- Object ID
- Term (if applicable)
- Transaction date/time
- Report date

5.5 Daily Billable Transaction Report (csv)

The Daily Billable Transaction Report is delivered to the Registrar SCP account daily by 0800UTC. This csv-formatted report includes all billable transactions submitted by a Registrar during the reporting period. These transactions include:

- Domain creates
- Domain grace-deletes (for any transaction type)
- Domain renewals
- Domain transfers
- Domain restores

The following data is included in the report:

- Registrar Name
- Registrar ID
- Transaction Type (create, renew, auto-renew, grace delete, transfer, restore)
- Domain Name
- Domain ID
- Term (if applicable)
- Transaction date/time
- Report date

5.6 Daily Transfer Report – Gaining (csv)

The Daily Transfer Report is delivered to the Registrar SCP account daily by 0800UTC. This csv formatted report includes information about all transfers that were completed, cancelled, or are in pending status for the Gaining registrar during the reporting period.

The following data is included in the report:

- Gaining Registrar Name
- Gaining Registrar ID
- Losing Registrar Name
- Domain Name
- Domain ID
- Domain Registration Date
- Domain Expiration Date
- Transaction Status (pending, clientCancelled, clientApproved, clientRejected, serverApproved, serverCancelled)
- Transfer Request Date (the date the transfer request was submitted)

- Transfer Completion Date (only for domains that have been successfully transferred)
- Report date

5.7 Daily Transfer Report – Losing (csv)

The Daily Transfer Losing Report is delivered to the Registrar SCP account daily by 0800UTC. This csv formatted report includes information about all transfers that were completed, cancelled, or are in pending status for the Losing Registrar during the reporting period. The data is sorted by status, and then by domain name.

The following data is included in the report:

- Losing Registrar Name
- Losing Registrar ID
- Gaining Registrar Name
- Domain Name
- Domain ID
- Domain Registration Date
- Domain Expiration Date
- Transaction Status (pending, clientCancelled, clientApproved, clientRejected, serverApproved, serverCancelled)
- Transfer Request Date (the date the transfer request was submitted)
- Transfer Completion Date (only for domains that have been successfully transferred)
- Report date

5.8 Weekly Nameserver Report (csv)

The Weekly Nameserver Report is delivered to the Registrar SCP account weekly by 0800UTC. This csv formatted report includes information about all name servers (in-zone) under the management of the Registrar at the time of the report. The data is sorted by name server name.

The following data is included in the report:

- Registrar Name
- Registrar ID
- Name Server
- IP Address
- Name Server Creation Date
- Report date

5.9 Monthly Expiring Domains Report (csv)

The Monthly Expiring Domains Report is delivered to the Registrar SCP account monthly on the first day of the month by 0800UTC. This csv formatted report includes information about all domains in a Registrar's account set to expire during the following 45 days. The data is sorted by expiration date.

The following data is included in the report:

- Registrar Name
- Registrar ID
- Domain Name
- Domain ID
- Expiration Date/Time
- Report date
- The following SRS reports are available to Registrars via the SCP Server:
 - Daily Transaction Report
 - Transfer Report
 - Redemption Grace Period Report
 - Registrar Escrow Report
 - Monthly Transaction Report

5.10 Financial Reports

Neustar provides online billing functionality which allows you to manage your Registrar account easily. Our efficient Web-based solution combines two powerful tools, which are described below:

5.10.1 Registry Billing Website

The Neustar Billing website allows Registrars to retrieve their account statements online, and also provides access to documentation and tutorials. You can enter Neustar eBill site (described in the next bullet) from the billing website, as well.

5.10.2 Registry eBill

Registry Billing will provide a confidential user ID and password (with which to access eBill) to each new Registrar at signup. Once Registrars log in, they will have access to an eBill Tutorial to make eBill utilization more effective and useful.

Registry eBill provides Registrars with a tool to view account balances, payments, and invoice details online and in real-time on a 24x7 basis. It connects directly to Neustar Billing and Accounts Receivable database, and is updated four (4) times every day at 05:30, 11:30, 17:30 and 23:30 UTC. Registrars can submit inquiries and change contact information on their accounts in eBill.

5.10.3 **Accessing Neustar Billing Website**

1. Log on to <https://billing.neustar.biz/registry>
2. Select the Billing option
3. Enter the Registrar confidential sign-on information:
 - a. User ID
 - b. Password

5.10.4 **Accessing Neustar eBill:**

1. Log on to <https://ebill.neustar.biz/>
2. Enter the Registrar confidential sign-on information
 - a. User ID
 - b. Password

If additional assistance with sign-on is required, please contact Registry Billing Support at +1-877-BILL-277 (+1-877-245-5277) or registry-billing@neustar.biz.

6 Whois Service

Neustar provides a Whois service as a lookup service for Registries, Registrars and Registrants, as well as for other individuals and businesses that wish to query details of domain names or nameservers stored in the Registry SRS database. The “thick” Registry configuration of the Registry SRS provides the standard Whois service with a central location for all authoritative TLD data. Registrars are able to provide a front-end web interface to the standard Whois service. In addition, Neustar provides its own front-end web interface to allow convenient user access to the Whois service.

Due to the nature of the “thick” Registry model, the standard Whois service is engineered to handle high transaction load and is integral to the standard suite of Registry services. The service returns a single response per Domain Name, Registrar, Nameserver or Registrant query.

Neustar Whois service provides the following features:

- Standard protocol accessible over port 43
- Consistent format (fields and formatting) for all Registrars
- Near real-time updates, which eliminate timing problems when modifying Registry SRS information
- Extensible field capability
- Advance search capabilities

6.1 Whois Service Data Elements

A Whois service query returns the following data elements:

6.1.1 Domain Name Query

Enter the Domain Name without the TLD to search for a Domain. The search will return the following elements:

- The name of the Domain registered with Domain ID
- The accredited name of the Registrar with IANA ID
- The status of the Domain
- The Registrant name, ID, postal address, email address, voice telephone number, and (where available) facsimile number.
- Each of the Administrative, Billing, and Technical Contacts, name, postal address, email address, voice telephone number, and (where available) facsimile number
- The names of the Domain’s Nameservers
- The original creation date and expiration date of the Domain

6.1.2 Registrar Query

To search for a specific Registrar, enter the full name of the Registrar. If the Registrar Name ends with an "Inc.", you must add an "f [space]" prefix to that Registrar Name. For example, to search for "XYZ Registrar, Inc.", you would use the following text to perform your search: **f XYZ Registrar, Inc.** If the Registrar Name does not end with "Inc.", the "f [space]" prefix is not necessary. For example, to search for "ABC Registrar," you would use the following text to perform your search: **ABC Registrar.**

To search for Registrar Names that begin with a certain letter (or letters), a "." (Dot) is used as a "wildcard" and is placed immediately after the letter (or letters) on which you would like to search. For example, to search for Registrar Names that begin with "XYZ", you would use the following text to perform your search: **XYZ.** The searches will return the following elements:

- The Registrar's name, IANA ID, postal address, email address, voice telephone number, (where available) facsimile number and the ROID.
- The Administrative, Billing and Technical Contacts with their voice telephone number, email address and ROID.

6.1.3 Nameserver Query

Enter an IP address or the Nameserver's name to search for a nameserver. Each nameserver has an IP address in the format of 000.000.000.000. The search will return the following elements:

- Nameserver name, ID and status
- Sponsoring Registrar Name and IANA ID
- Nameserver Registration Date

6.1.4 Registrant ID Query

Enter the Registrant ID number in order to search for a Registrant. The search will return the following elements:

- The Registrant name, ID, postal address, email address, voice telephone number, and (where available) facsimile number.
- Sponsoring Registrar name and IANA number
- The contact ROID, registration date and status

6.1.5 Searchable Whois

The Searchable Whois service is more robust and goes beyond the basic exact match search described above. This web based interface enables the user to search on one of the following attributes to obtain whois information.

- Domain name
- Contact name (returns result if registrant name is in any whois contact)
- Postal address which includes any of the following:
 - Street address or Address

- City
- State/Province
- Postal code
- Country code

The Search may be performed on up to four of the seven attributes listed above. The system does not provide validation checks of the attribute values. If the value entered is wrong for the attribute type (and assuming there is no matching criteria), then no records will be returned. Up to 75 total domain name records as links, that match the query attributes, will be returned, with no more than 25 records per page. Clicking the domain name link presented will show the WHOIS record for that domain name.

7 PAYMENTS

7.1 Payment Types and Methods

- All payments will be made in USD or EUR
- Payment can be made via debit account or credit/debit card.
- Neustar will introduce payment terms for Registrars that qualify for such terms. For more information regarding payment terms, please contact your account manager or Customer Support.

7.2 Debit Account Overview

Registrars using debit accounts must transfer sufficient funds into their account to ensure that funds are available for all their domain name applications. Registrars who wish to use a credit/debit card must be sure to have an adequate credit limit or deposit funds, as a backup, which will support the number of domain name applications submitted. If you have any questions at any time, please do not hesitate to contact Registry Billing Support at +1-877-BILL-277 (+1-877-245-5277) or registry-billing@neustar.biz.

Neustar must establish an account with the Registry Operator's bank for the Registrar. The Registrar is responsible for funding the account to a level that is consistent with its monthly sales volume. The account will not be allowed to fall below 20% of the monthly Registrar sales volume. The Registry Operator will notify the Registrar by email when the account reaches 20% of monthly sales volume. The Registrar is responsible for funding the account to 100% within 48 hours of notice by the Registry Operator. If the account falls to a zero balance, the Registry Operator reserves the right to stop accepting orders from the Registrar until the account is fully funded.

7.3 Instructions for Obtaining a Registrar Account

The Debit Account is an account that has been pre-funded with an amount equal to the one-month projected sales volume from which the Registry Operator can draw down funds required to fulfill ongoing registrations and Registry Operator product purchases.

Step 1: Complete the *Registrar Profile* form, which is used to input your profile for the Bank of America Debit Account.

Step 2: Return the completed form via email or facsimile to Neustar Billing Department at (+1 571) 434-5786.

Step 3: You will receive your new account number within five (5) to seven (7) business days along with wire instructions from the Registry Operator.

Step 4: Using the wire instructions; make the initial deposit into the account to comply with the Projected Monthly Sales, which were entered into the form.

Additional Information:

- The debiting of your account by the Registry Operator will take place upon receipt of the Domain Name Registration files.
- Notification will be sent to the Registrar if the account has not been replenished and reaches the LWM. You will have 48 hours to initiate the deposit to the account.
- The Registry Operator will pay bank fees associated with the Registrar's account, but the Registrar is responsible for all wire fees. For example, a wire of US\$500.00 would include a US\$20.00 transaction fee from the originating bank. This US\$20.00 fee is the responsibility of the sending Registrar. The monthly fees associated with the handling of the remaining US\$480.00 are paid by the Registry Operator at Bank of America.
- Registry eBill is useful for viewing account balances, payments, and invoice details online and in real-time on a 24x7 basis.

7.3.1 Wire Transfer Instructions

The Registry Operator has established an account at the Bank of America. Please ensure your payment wires reflect the information below.

{Insert Name} Registrar Account

- Name: Bank of America, N.A.
- Address: Richmond, VA, USA
- Telephone: (888) 841-8159
- Account Name: <Your Company Name>
- Account Number: <Your Account number>
- ABA Number: 026009593
- SWIFT Code: BOFAUS3N



The Registry Operator will maintain and pay bank fees associated with the Registrar's account, but the Registrar is responsible for all wire fees.

8 SRS Business Rules

This section presents each of the EPP object manipulation commands and explains the associated business rules. Neustar Toolkit allows the user to perform the following operations on domain, host and contact objects supported. The following table identifies which operation applies to which objects:

Table 4 SRS Business Rules

Operation	Domain	Host	Contact
Create (Add)	X	X	X
Delete	X	X	X
Modify (Update)	X	X	X
Renew	X		
Transfer	X	X	X
Query Types:			
<i>Check</i>	X	X	X
<i>Info</i>	X	X	X

8.1 Create

This operational command enters the Domain, Host, or Contact into the system.

Create Domain

- The name of the Domain being registered **MUST** conform to standardized Internet syntax rules. A summary of these rules follows:
- The name is to be unique to the Registry SRS.
- The name may contain only letters, numbers or the special character hyphen. However, a hyphen may not begin or end a name, nor have two or more consecutive hyphens. No other special characters are permitted. The rules for Internationalized Domain Names (IDNs) may cause exceptions, and the specific IDN rules should be reviewed for the necessary detail. See Section 11 IDN's of this guide for more details.

- The name label must have a length greater than two (2) characters and less than or equal to 63 valid characters in the second-level domain.
- Once created, the name and its Repository Object Identifier (ROID) cannot be modified.
- The Domain name includes the TLD extension (abc-123domain.biz).
- There can be a minimum of two (2) nameservers and a maximum of 13 nameservers associated with a domain.

8.2 Delete

This operational command deletes a Domain, Host or Contact from the Registry SRS.

Delete Domain

There are four (4) Grace Period values that can be associated with a Domain; these values are used to determine whether a Domain should be deleted outright, or flagged for future deletion.

Add Grace Period (five days) is associated with the date the Domain was added. Deletes during this period will result in a credit to the Registrar and an immediate deletion of the Domain from the SRS with no Redemption Grace Period (RGP).

Renew Grace Period (five days) is associated with the date the Domain was renewed. Deletes during the Renew Grace Period will result in a credit to the Registrar and an immediate deletion of the Domain from the SRS with no RGP.

Auto-renew Grace Period (45 days) is associated with the date the domain was set to expire. During this period, the Domain will show a past due date and the Registrar's account will not be debited. The Domain will be auto-renewed as opposed to explicitly renewed by the Registrar at the end of 45 days, and the Registrar's account will be debited for a one-year renewal. It will be the Registrar's responsibility to update this domain and establish its correct status. A five-day Grace Period (during which the Registrar can delete the Domain and still receive a credit) will follow the auto-renew, but a credit will not be given after the five-day Grace Period closes.

Transfer Grace Period (five days) is associated with the date the domain was transferred. Deletes during the Transfer Grace Period will result in a credit to the Registrar and an immediate deletion of the Domain from the SRS with no RGP.

Delete operations are subject to the *Prohibit* statuses described below.

- If the Domain has "child" nameservers that are associated to other Domains, the delete action fails. The Domain cannot be deleted until the associations are removed.
- If the deletion date is within any of the above grace periods, the Domain is deleted outright; otherwise, the Domain status is set to "Pending Delete" and is deleted only after the conclusion of the Redemption Grace Period (see Section 8.8 below regarding the RGP).

8.3 Modify

This operational command modifies or updates the Domain, Host, or Contact of a Domain.

Modify Domain

The modify command updates all (or a subset of) the attributes. The Domain must be in a status to allow for this operation to execute. The following set of attributes can be modified or updated through this operation:

- Admin Contact ID
- Billing Contact ID
- Technical Contact ID
- Registrant ID
- Status
- Domain Name Nameservers
- Registrar name/value pairs
- Modify operations are subject to the *Prohibit* statuses described in Section 8.7.

8.4 Renew Domain

This operational command renews or extends the registration period of a Domain Name by changing the Expiration Date and the Registration Period. A Domain can be renewed at any time during its term. This command is also used to restore registered Domain Names that have been inadvertently deleted yet are still within the 30-day Redemption Grace Period. The total maximum number of years a Domain can be registered for is 10 years. If the period of years is not passed to the Registry SRS, then by default a Domain is renewed for one (1) year. Renew operations are subject to the *Prohibit* statuses described in Section 8.7.

8.5 Transfer

This operational command is used to do one of several different functions for a Domain, Host or Contact:

- To request a transfer to a different Registrar
- To query the status of an already submitted transfer request, or
- To approve/disapprove a transfer request

Transfer Domain

Transfer of a Domain is not allowed within the first 60 days of registration. When a Domain is transferred successfully, one additional year is added to the Registration Period and

Expiration Date of the transferred domain. Transfer operations are subject to the *Prohibit* statuses described in Section 8.7.

8.6 Query

Once an object is in the Registry SRS, a Registrar may retrieve information regarding the object. This is achieved through a Query command. There are two types of Query commands available (*Info* and *Check*).

8.6.1 Info

The *Info* operational command for any of the known objects in the SRS is very simple. The command returns the information about the Domain, Host, or Contact, and returns different sets of data depending upon the ID of the requesting Registrar. If the requesting Registrar is the sponsoring Registrar, then the server returns the complete set of data about the Domain. If the requesting Registrar is not the sponsoring Registrar, the data returned is the same as a Whois query on the Domain. The Registry SRS policy allows only the sponsoring Registrar to receive the object's AuthInfo code in the response from the server. This protects the object from malicious transfer requests, since the Registrar requesting the transfer requires an AuthInfo code.

8.6.2 Check

Given a Domain, Host or Contact, this operational command checks whether the object is already registered in the Registry SRS or not. The Check command can be used to check for the existence of up to 1,000 domain objects per command.

8.7 Prohibit and Hold Status

The Client and Server *Prohibit/Hold* status prevents the associated action from being performed by either the Registrar or the Registry Operator. The Registry Operator can add and remove Server status and can also remove Client status. The Registrar can add and remove only the Client status. The Hold status prevents the Domain from being pushed to the zone; it does not prevent updates, renews, transfers, and so on.

The following table identifies which status applies to which object.

Status	Domain	Host	Contact
Client Delete Prohibited	X	X	X
Server Delete Prohibited	X	X	X
Client Hold	X		
Server Hold	X		
Client Renew Prohibited	X		
Server Renew Prohibited	X		
Client Transfer Prohibited	X	X	X
Server Transfer Prohibited	X	X	X
Client Modify Prohibited	X	X	X
Server Modify Prohibited	X	X	X

8.8 Redemption Grace Period (RGP)

The Redemption Grace Period enables Registrars to restore registered Domains that have been inadvertently deleted but are within the Redemption Grace Period. This restore is accomplished using the EPP Command RenewDomain.

- Domains that are deleted outside the five-day grace period will go into Pending Delete status for 35 days.

- During the first 30 days, a Registrar may restore a Domain by issuing the “Restore” command as outlined below.
- During the final five (5) days of the Pending Delete period, the Domain may NOT be restored.
- All restorations will incur a fee.

Following a restoration, the Domain may not be deleted, transferred, or renewed for five (5) additional days. Note: during this five-day period, the domain will NOT contain specific statuses to indicate that it cannot be deleted, transferred, or renewed; however, all such commands will fail. There is one exception to this rule: domains that are deleted during the *Auto-Renew Grace Period* will be placed on “Pending Delete” as outlined above. In addition, the Domain’s expiration date will revert to the expiration date prior to that Auto-Renew event. If the Domain is subsequently restored, it will be explicitly renewed for one year. The Registrar will be debited for the renewal fee and the restoration fee.

8.8.1 Restoration Details

In order to restore a deleted Domain, the Registrar must submit an EPP-modified *Renew* command. This command is identical to the Renew command, with the following modifications:

- No “renewal term” value is to be included.
- There are four (4) name-value pairs that **MUST** be included with the command. These pairs include the data necessary to satisfy the registry reporting requirement.

The following is a list of additional data elements that are required to restore a Domain. These are specified via the **<unspec>** element of a **<domain:renew>** command. Note that the **<domain:renew>** command must **NOT** include a Registration Renewal Period value.

Table 5 Data Elements Required to Restore a Domain

Name	Purpose
RestoreReasonCode	The Reason for deletion. The following values are valid: Code→Description a. Registrant Error b. Registrar Error c. Judicial/Arbitration/Legal 0. Other
RestoreComment	A text explanation for the deletion. A value MUST be supplied in this field. If there is no additional comment necessary, a value of “none” is recommended. Spaces are not valid. It is recommended that you use underscores or hyphens to separate words.
TrueData	Registrar’s affirmation that the data is accurate. (Value must always equal Y.)
ValidUse	Registrar’s affirmation that the Domain is being restored in compliance with ICANN and Registry policies. (Value must always equal Y.)

8.8.2 Whois Information

The Domain “Last Updated Date” in the Whois record will indicate when the Domain was deleted.

The Whois record displayed on the {Insert Name} Whois web site will indicate whether a Domain in “Pending Delete” status is restorable (within the first 30 days) or not restorable (during the final five days). Port 43 Whois lookups will not indicate this; however, the disposition of the Domain may be determined by calculating the time passed since the deletion, as indicated by the Domain “Last Updated Date”.

8.9 Overlap Grace Period

If an operation is performed and falls into more than one (1) grace period, the actions appropriate for each grace period apply, with exceptions as noted below.

- If a Domain is deleted within the *Add Grace Period* and the *Renew Grace Period*, then the Registrar is credited the registration and renew amounts, taking into account the number of years for which the registration and renew were done. The Domain is

deleted from the Registry database, and is immediately available for registration by any Registrar.

- If a Domain is Auto-Renewed, then extended, and then deleted within the *Renew Grace Period*, the Registrar will be credited for the Auto-Renew and the number of years for the extension. The years that were added to the Domain expiration as a result of the Auto-Renewal and extension are removed. The deleted Domain is moved to the Redemption Grace Period, with a pending delete status.
- If a Domain is deleted within one or more Transfer Grace Periods, then only the current sponsoring Registrar is credited for the transfer amount. (For example, if a Domain is transferred from Registrar A to Registrar B and then to Registrar C and finally deleted by Registrar C within the Transfer Grace Period of the first, second and third transfers, then only the last transfer is credited to Registrar C.)
- If a domain is extended utilizing the *Renew* command within the Transfer Grace Period, then the current Registrar's account is charged for the number of years the registration is extended.



If several billable operations, including transfers, are performed on a Domain, and the Domain is deleted within the grace periods of each of those operations, only those operations that were performed after the latest transfer, which includes the latest transfer, are credited to the current Registrar.

9 Registrar Domain Transfers

The Transfer of Domain Names can occur whenever the Domain Name holder wishes to change Registrars, or whenever ICANN determines a need for Domain Names to be transferred between Registrars.

9.1 Domain Name Holder Transfers

The Domain Name holders can transfer their domain name registrations between Registrars provided (1) that the gaining Registrar's transfer process meets the minimum standards, and (2) that such transfer is not prohibited by ICANN or Registry policies.

The Administrative Contact and the Registered Name holder (as listed in the Registrar of Record or the Registry Operator's WHOIS service) are the only parties that have the authority to approve or deny a transfer request to the gaining Registrar. Registrars may use Whois data from either the Registrar of Record or from the Registry SRS for the purpose of verifying the authenticity of a transfer request.

For each instance where a Registered Name holder requests the transfer a Domain name registration to a different Registrar, the gaining Registrar shall obtain express authorization from either the Registered Name Holder or the Administrative Contact in a written form. The authorization must be made via a valid standardized Form of Authorization (FOA). The presumption in all cases will be that the gaining Registrar has received and authenticated the transfer request made by the authorized Contact.

Upon receipt of the Transfer command from the gaining Registrar, the Registry Operator will transmit an electronic notification to both Registrars. The Registry Operator shall complete the requested transfer unless, within five (5) calendar days, the Registry Operator receives a NACK protocol command from the Registrar of Record. When the Registry's SRS database has been updated to reflect the change to the gaining Registrar, the Registry Operator will transmit an electronic notification to both Registrars.

The Registry Operator will undo a transfer if, after a transfer has occurred, the Registry Operator receives one of the notices as set forth below. In such case, the transfer will be reversed and the domain name reset to its original state. The Registry Operator will undo the transfer within five (5) calendar days of receipt of the notice except in the case of a dispute decision, in which case the Registry Operator will undo the transfer within 14 calendar days unless a court action is filed. The notice required shall be one of the following:

- Agreement of the Registrar of Record and the gaining Registrar sent by email, letter or fax that the transfer was made by mistake or was otherwise not in accordance with procedures;
- The final determination of a dispute resolution body having jurisdiction over the transfer; or
- Order of a court having jurisdiction over the transfer.

The completion by the Registry Operator of an authorized transfer shall result in a one-year extension of the existing registration, provided that the event shall not exceed the total non-expired term of a registration for 10 years.

9.1.1 ICANN Transfers

ICANN approves Transfers of the sponsorship of all the registrations sponsored by one Registrar as the result of:

- Acquisition of that Registrar or its assets by another Registrar; or
- Lack of accreditation of that Registrar, or lack of its authorization with Neustar, made according to the following procedure:
 - The gaining Registrar must be accredited by ICANN for the TLD and must have in effect a Registry-Registrar Agreement with the Registry Operator for the specific TLD.
 - ICANN must certify in writing to the Registry Operator that the transfer would promote the community interest, such as the interest in stability that may be threatened by the actual or imminent business failure of a Registrar.

Upon satisfaction of these conditions, the Registry Operator will make the necessary one-time changes in the Registry database for no charge, for transfers involving 50,000 name registrations or fewer. If the transfer involves registrations of more than 50,000 names, the Registry Operator charges the gaining Registrar a one-time flat fee of US\$50,000.00.

10 Zone File

The Registry Operator generates and propagates the DNS Zone File updates to the DNS server array incrementally, as transactional updates within the SRS occur from new Domain registrations. The updates initiated by the SRS are then queued and propagated to the DNS server array in near real-time, which is consistent with the applicable service level requirements.

The Registry Operator stores only the following resource records in the Zone File database:

- A single Start of Authority (SOA) record
- A number of Nameserver (NS) and IP address (A) records, up to a maximum of 13 of each, for the TLD DNS servers
- Domain name and delegated nameservers the NS Records
- Nameserver host names and their associated IP addresses or A Records

The Registry Operator provides access to the zone file in bulk. This reduces the load placed on the nameservers by data mining programs. The entire database, in a BIND format, is provided to facilitate services for suggesting alternate names, accelerating DNS queries, and compiling industry statistics.

The bulk zone file is available to the public through ICANN's Centralized Zone Data Access Program.

11 Internationalized Domain Names

Neustar has implemented the Internationalized Domain Name (IDN) standards for TLD Names. The Registry Operator's implementation of the IDN standards limits the domain label to the characters associated with available IDN language or sets of languages currently operating on the Internet. The Registry Operator provides its Registrars with informational resources and services in all the available languages that offer IDN registrations.

Domain names were restricted to the ASCII character set. ASCII being English-based, supports only 128 possible characters, this standard greatly limits the ability to register a domain name in another language. In contrast The **Unicode** standard provides a unique number for every character regardless of platform, program, or language. Internationalized Domain Names (IDNs) are domain names that can potentially contain any of the entire range of Unicode characters. For example, müller.biz is an internationalized domain name.

A resource for the IDN standards can be found on the ICANN website at <http://www.icann.org/general/idn-guidelines-20jun03.htm>, along with the standards reflected in RFCs 3490, 3491, and 3492. The guidelines for the IDN standards were published on June 20, 2003 by ICANN.

ACE (ASCII Compatible Encoding) is the means by which a unicode domain name (IDN) can be expressed using combinations of the 128 ASCII characters. Punycode is the means by which IDNs are translated to ACE format. For more information on punycode, see the IETF's RFC 3492 at <http://www.ietf.org/rfc/rfc3492.txt>.

Currently Neustar supports a number of IDN language tables which can be found here: <http://www.iana.org/domains/idn-tables>.

11.1 Registering IDNs

IDN registration requests are submitted in ACE format accompanied by a language code. GNU's IDN Library may be used to provide assistance in converting IDNs to the ACE format. The IDN library can be found at <http://www.gnu.org/software/libidn>. Using this tool, the following can be accomplished:

1. convert IDNs to ACE domain names.
2. convert ACE domain names to IDNs.
3. specify nameservers in ACE format.

11.1 Rules for IDNs

In order to qualify for registration in the SRS, the source IDN must meet the following criteria:

1. must be at least three (3) characters in length, exclusive of the TLD extension.
2. must contain at least one Unicode character associated with the specified language code.
3. must not begin or end with a hyphen (-).
4. must not contain spaces or special characters such as ! \$ &.

11.2 Rules for ACE Domain Names

An ACE-formatted domain name must meet the following criteria:

1. must not exceed 63 characters.
2. can contain only the characters **A-z, a-z, 0-9**, and **- (hyphen)**. Special characters such as **!, \$, &** are not allowed.
3. must be accompanied by a supported language code. See the IDN Supplement to the Developer's Guide for specifics on how to use the EPP extension to create an IDN domain.

ISO 639 provides two sets of language codes, one as a two-letter code set (639-1) and another as a three-letter code set (639-2) for the representation of names of languages. Not all languages have been assigned a two-letter code; when available, the two-letter code must be used. For more information, see <http://www.loc.gov/standards/iso639-2/langhome.html>.

Currently Neustar supports a number of IDN language tables which can be found here: <http://www.iana.org/domains/idn-tables>.

11.4 Toolkit API Classes

This section describes the classes provided with the Toolkit API that specifically address IDNs.

11.5 EppIDNData

This class is the required extension for an IDN object and specifies the table and Unicode name of the domain. The ASCII representation of the name is provisioned into domain name of the EppCommandCreate class.

11.6 Provisioning an IDN

11.6.1 Create Domain Name [EppCommandCreate, EppIDNData]

This operation enters the Domain Name into the system.

11.6.1.1 Required Attributes

- Domain Name – ASCII Punycode representation (xn--)
- Language Code
- Admin Contact ID
- Technical Contact ID
- Billing Contact ID
- Registrant ID

11.6.1.2 Optional Attributes

- Registration Period
- Registrar name/value pairs
- Domain Name – Unicode representation

11.6.1.3 Implicit Attributes

- Status
- Expiration Date
- Registration Date
- Sponsoring Registrar
- Created By
- Created Date
- Updated By
- Updated Date

11.6.1.4 Data Returned

- Domain Name
- Expiration Date

11.6.1.5 Result Codes

- 1001 Command completed successfully, action pending
- 2001 Command syntax error
- 2002 Command use error
- 2003 Required Parameter missing
- 2004 Parameter value range error
- 2005 Parameter value syntax error
- 2104 Billing failure
- 2400 Command failed

12 IPv6 Provisioning

IPv6 is short for "Internet Protocol version 6." IPv6 is the next-generation protocol designed by the Internet Engineering Task Force (IETF) to replace the current version Internet Protocol, IP Version 4 ("IPv4"). IPv6 was primarily developed to stave off the impending exhaustion of the IPv4 address pool.

IPv6 fixes a number of problems in IPv4, such as the limited number of available IPv4 addresses. It also adds many improvements to IPv4 in areas such as routing and network auto configuration. IPv6 is expected to gradually replace IPv4, with the two coexisting for a number of transition years.

Neustar is capable of supporting IPv6. The following resources provide more information related to using IPv6:

The [IPv6 web site \(http://www.ipv6.org/\)](http://www.ipv6.org/) provides detailed information on implementing IPv6.

13 Terms and Definitions

Table 6 Terms and Definitions

Term	Definition
Accredited Registrar	A Registrar is a company that has formal ICANN approval to do business with the Registry Operator. ICANN's primary objective is ensuring the stability of the Internet's system of assigned names and numbers.
AP	Auction Provider
CSR	Customer Service Representative
Domain Name	The name of the domain to be registered. Domain Name syntax rules follow the conventions as set forth in RFC952 and RFC1123.
Domain Name System (DNS)	The DNS is a ubiquitous, globally distributed, decentralized and scalable database. It consists of a hierarchical name space, clients, servers, and a lightweight lookup protocol. The DNS is mainly used for mapping names to IP addresses.
Extensible Provisioning Protocol (EPP)	A protocol designed to facilitate communication between Registrars and Registries.

Term	Definition
Internationalized Domain Name (IDN)	IDNs are web addresses in various languages used worldwide. IDNs use characters drawn from Unicode, but IDN applications allow non-ASCII characters to be represented using only the ASCII characters already allowed in host names.
Internet Corporation for Assigned Names and Numbers (ICANN)	The organization responsible for coordination of the global Internet's systems of unique identifiers, and coordinates the allocation and assignment of the three sets of unique identifiers for the Internet, which are Domain names (forming a system referred to as "DNS"); Internet protocol ("IP") addresses and autonomous system ("AS") numbers; and Protocol port and parameter numbers.
IPv6	IPv6 is the next generation of the Internet Protocol. This revised standard will allow the Internet to continue to grow without limitation for the foreseeable future.
Operational Test and Evaluation (OT&E)	This platform is used by the Registry Operator to allow the Registrars to test and evaluate their registration processes with the Registry SRS in a live, non-production environment. This test environment is designed to reduce the number of potential problems in the Production database.
Pass Phrase	The security phrase established by the Registrar to prove to the Registry Operator in various communications that they are the actual company with the authority to access proprietary information about their customer's domain names.
Registrant	A Registrant is the customer of the Registrar who buys domain names. This person can be either the primary user or a reseller. The Registrar refers to this customer as an Second Level Domain (SLD) holder.
Registrar	The company responsible to the consumer for registering domain names with the Registry SRS.
Registry Operator	The entity entering into the Registry Agreement with ICANN, responsible for setting up and maintaining the operation of the registry.
Registry Services Provider	The entity providing Registry Services on behalf of the Registry

Term	Definition
	Operator. For purposes of this document, Neustar shall serve as the Registry Services Provider .
Root Nameserver	The Internet’s root DNS servers publish the root zone file that is coordinated by IANA. This file contains details of the names of top-level domains (TLDs) and the name servers which serve them.
RSP	Registry Service Provider – Neustar
RTK	Registrar Toolkit for the EPP Interface
Second-Level Domain (SLD)	A second-level domain is the alphanumeric string of characters “before the dot” that precedes the TLD.
Shared Registry System (SRS)	An SRS enables multiple Registrars to register domain information on behalf of a Registrant with the Registry.
Top Level Domain (TLD)	TLDs are the names at the top of the DNS naming hierarchy. They appear in domain names as the string of characters following the last rightmost dot, such as “tld is in example.tld”.
Whois	The whois system is a public service mainly intended to provide contact details of the entity or individual who has registered a domain name. This is sometimes used to resolve technical problems. Data returned from whois can be used to assist law enforcement efforts.

Appendix A: Certificate Authorities

There are two points to consider when applying for your Certificates:

Purpose should be “SSL Client” if the issuing Certificate Authority (CA) includes Netscape X509 extensions; otherwise, this is not required.

- You should use **RSA encryption** when generating public/private key. (This is a prerequisite step before requesting a certificate from the CA.)
- The Registry SRS supports the following Certificate Authorities and Certificate Types:

Authority:

GEOTRUST/Equifax (www.geotrust.com)

Types:

- Equifax Secure Certificate Authority
- Equifax Secure eBusiness CA-1
- Equifax Secure eBusiness CA-2
- Equifax Secure Global eBusiness CA-1

Authority:

VeriSign (www.Verisign.com)

Types:

- VeriSign Class 1 Public Primary Certification Authority –G3
- VeriSign Class 2 Public Primary Certification Authority –G3
- VeriSign Class 3 Public Primary Certification Authority –G3
- VeriSign Class 4 Public Primary Certification Authority –G3

- VeriSign Commercial Software Publishers CA
- VeriSign Individual Software Publisher CA

- VeriSign Class1 Primary CA (expires 2018 – trust network)
- VeriSign Class2 Primary CA (expires 2018 –trust network)
- VeriSign Class3 Primary CA (expires 2018 – trust network)
- VeriSign Class4 Primary CA (expires 2018 – trust network)

- VeriSign Class1 Primary CA (expires 2028 – trust network)

- VeriSign Class2 Primary CA (expires 2028 – trust network)
- VeriSign Class3 Primary CA (expires 2028 – trust network)
- VeriSign Class4 Primary CA (expires 2028 – trust network)

Authority:

GTE (COMODO) (www.instantssl.com)

Types:

- Cyber Trust Global Root
- GTE Cyber Trust Root (expires 2004)
- GTE Cyber Trust Root (expires 2006)

Authority:

THAWTE (www.thawte.com)

Types:

- Thawte Personal Basic CA
- Thawte Personal Premium CA
- Thawte Premium Server CA
- Thawte Server CA
- Thawte Freemail CA

Authority:

Global Sign (www.globalsign.net)

Types:

- GlobalSign Root CA