

## COMMERCIAL VALIDATION SERVICE RFI - RESPONSE SUMMARY

On 7 February 2014, ICANN [published a Request for Information](#) to identify any commercially-available services and software that might be capable of validating or verifying domain name registration contact data (such as WHOIS).

This RFI was intended to inform two distinct ICANN projects that require address validation and verification. The first project relates to a near-term need for postal address cross-field validation services arising out of requirements applicable to those registrars who have signed the new 2013 Registrar Accreditation Agreement (RAA Project). In addition, ICANN sought similar information for a separate longer term project in connection with Expert Working Group on Next Generation gTLD Directory Services ("EWG") recommendations to identify a replacement to the current WHOIS system.

RFI submissions were received from eight (8) organizations:

- CNNIC
- DigiCert
- Experian
- Informatica
- Melissa Data
- SDF
- Strikelron
- UPU

These submissions are summarized in two tables that follow. The first table focuses on each respondent's background, services, costs, and other related information. The second table summarizes validation and verification approaches for each data element, as described by all respondents. Individual RFI responses provided additional discussion about available services and software and how each Respondent might help meet ICANN's current and future address validation and verification needs.

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## SUMMARY OF RFI RESPONDENTS, SERVICES, AND COSTS

Name	Background	Services	Other Info	Cost
Address Doctor Maxdorf, Germany	<p>AddressDoctor is an enterprise class postal address validation &amp; correction engine, which has been engineered from the ground up to effectively manage the myriad idiosyncrasies present in global postal address format standards &amp; to correct the inherent problem of human error within all data collection points.</p> <p>AddressDoctor boasts premium postal reference data for over 251 countries &amp; territories</p>	Syntactical and operational postal Address Validation	<p>Response Time: A single core of our engine is capable of processing in excess of 3 million records per hour. In other integrations we can perform real time global address validation in 100ms, which varies based on latency issues.</p> <p>AddressDoctor is the most mature address validator on the planet, with over 20 years of independent research &amp; development; it was selected for acquisition in 2009 by parent company Informatica due to the fact that it significantly outperformed all other commercially available offerings in speed, reliability &amp; quality results.</p>	<p>There are two main components to consider from a licensing perspective:</p> <p>a. The “engine” which are licensed per core for a one-time fee of \$25,000/core</p> <p>b. The “data subscription” which is licensed annually &amp; varies depending on the countries selected. We offer regional discounts &amp; an “All world” pack which includes every country we offer. For guidance, our “251 Country World Data Subscription” is \$143,900 per year/copy</p> <p>c. In certain integrations a separate annual maintenance cost will apply which pays for bug fixes, support, updates to the data subscriptions &amp; feature releases. This is 22% of the net license cost, charged annually.</p>
CNNIC China Internet Network Information Center Beijing, China	<p>China Internet Network Information Center (CNNIC), founded as a non-profit organization on Jun. 3rd 1997, is the state network information center of China, which has taken the responsibility of operating and administrating “.CN” country code top level domain (ccTLD) for 15 years. CNNIC locates at South 4th</p>	<p>CNNIC is capable of performing all the above verification in types of syntactical, operational and identity. As to operational verification, CNNIC conducts validation with email address, phone number, matching accuracy with postal address and zip code.</p>	<p>CNNIC currently supports address validation in China with real name verification ration achieves 99.3% upon more than 10 million “.CN” domains.</p> <p>CNNIC is capable of registration data verified upon syntactical validation within 50 milliseconds; operational validation within 400 milliseconds; identity validation within 5 minutes.</p>	

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	<p>Street, Zhongguancun, Haidian district, Beijing. CNNIC provides various internet basis services such as New gTLD related registration services, TMCH, Data Escrow, EBERO, DNS software and hardware. Being the most professional registrant identity authentication institution, CNNIC also provides New gTLD registries real name verification services.</p>			
<p><b>DigiCert Lehi, Utah USA</b></p>	<p>DigiCert is a certificate authority that provides trusted authentication services to large and notable organizations such as the United Nations, the United States House of Representatives, the Canadian Interior Department of Health, and NASA</p>	<p>Identity, operational and syntactical validation services; worldwide address validation services;</p> <p>syntactical validation checks are automated and produce immediate error codes;</p> <p>Operational validation systems – emails use a ping-back system;</p> <p>Operational address verification utilizes a database verification of the address or a letter sent to the address that contains an activation code. The entity confirms their address by inputting the activation code in a publicly available link.</p> <p>Identity verification uses third</p>	<p>Automated services respond within seconds;</p> <p>Manual processes depend on responsiveness of the registrant, typically within minutes;</p> <p>Very high assurance services typically within an hour</p> <p>24/7 support and an appeals process is available within an hour</p> <p>False positives – better than 1 in 100,000, with appeals processes available to remedy</p> <p>Handles more than 100,000 verifications annually</p> <p>Can flag a name as potentially</p>	<p>\$1 for automated services; Higher value validation \$10-\$300 depending on level of assurance required</p>

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		<p>party databases and other sources to confirm the physical existence or legal registration of the entity. Individuals are typically verified through a photo ID document. Legal entities are verified by confirming their registration with the appropriate government authority. For legal entities, the authority of the requester is verified by contacting the entity using a reliable method of communication and confirming the requester's agency. If ICANN wants a completely automated system, verification of identity is possible by requiring a credit card associated with the registrant.</p>	<p>fraudulent, triggering additional validation checks.</p>	
<p><b>Experian Data Quality Boston, Massachusetts USA</b></p>	<p>Experian Data Quality provides contact data validation services for 13,000 customers globally, many of which utilize our software within their eCommerce platform. Some examples of direct customers who have integrated our data quality tools within their website include: Overstock.com, 1-800-Flowers.com, drugstore.com, Nevada DMV and McMillion</p>	<p>Provide syntactical and operational validation services for address, email and telephone numbers.</p>	<p>Experian Data Quality will supply an address validation solution that allows the capture of validated and standardized postal address information in real-time.</p> <p>Experian Data Quality address verification engine uses fuzzy matching and proprietary algorithms that have been optimized over 20 years. Algorithms use rules based on misspellings, phonetic matching, address element recognition, and more.</p>	<p>Depending on the number of products and services selected there is the potential of a one-time service fee assessed to ICANN. This fee would likely range from 2-15% of the overall price of the solution provided.</p> <p>For all of our products and services our pricing model is an annual license fee based on annual transaction volume.</p>

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	<p>Research. We are also partners with organizations with similar challenges, such as The Common Application, which hosts college applications for over 500 schools within the United States.</p> <p>Experian Data Quality has offices in Boston, London, Paris and Sydney.</p>		<p>For our hosted address verification, and phone verification products there are typically sub-second response times.</p> <p>Our email verification product will interact with mail servers, so the actual response times vary. However, for popular domains such as Yahoo.com, the response time is sub second as well.</p>	
<p><b>Melissa Data Corporation</b>  <b>Rancho Santa Margarita, CA USA</b></p>	<p>Melissa Data is an OEM software manufacturer that develops software and tools for data quality, data enrichment, and data verification and provides over 6000 clients with a comprehensive suite of data centric solutions as a trusted partner.</p> <p>Every year Melissa Data initiates hundreds of commercial deployments of on premise tools, cloud software, and professional services in the domain of data quality and data enrichment, as well as entity matching and data consolidation. Our clients are found in many verticals from government, to banking, insurance,</p>	<p>Melissa Data’s services include global address, telephone, email verification as well as global IP address and name parsing and recognition solutions.</p> <p>The Melissa Data services are capable of full syntactical and operational validation and Identity with many of the request elements.</p>	<p>The services are designed to return responses of 100 records in less than a second. Depending on variables such as internet congestion sometimes the responses may be up to 3 seconds.</p> <p>Melissa Data’s Personator cloud product merges more than 20 different datasets and over 3 billion records of constantly updating consumer data points covering the entire United States.</p> <p><b>Nicknames and Abbreviations:</b>  Melissa Data’s matching leverages databases and logic built over decades to find matches for nicknames and abbreviations.</p> <p>- Different Formatting:  Formatting concerns are</p>	<p>Based on the information on the RFI and the custom application that would need to be built we are estimating \$500,000 and up.</p>

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	<p>manufacturing, and the healthcare industry.</p>		<p>automatically handled by the engine. Melissa Data will take the data and parse it out correctly to find the best match.</p> <p><b>Fuzzy Algorithms:</b> MelissaData has a toolbox of over 12 general string matching algorithms. These include industry- accepted algorithms like Levenstein and Jaro-Winkler, as well as proprietary Melissa Data ones like MD_Keyboard.</p>	
<p><b>Secure Domain Foundation Ontario, Canada</b></p>	<p>The SDF has developed a Substantial database of domain names classified By their type of malicious behavior, IP address reputation data, email address reputation data, and geo location validation.</p>	<p>The SDF provides a Reputation system; Essentially a verification System with the added benefit of providing an indication of reputation associated with the data element or elements.</p>		<p>There is currently no Fee for membership in The SDF and no fee for access to the API. The SDF is a not--- for---profit and the operational costs are covered by sponsors.</p>
<p><b>Strikelron Inc. Cary, North Carolina, USA</b></p>	<p>Industry Leader in APIs and API Management offering email validation and telephone validation services in North America</p>	<p>Email validation- Syntactical, operational</p> <p>Global address verification</p> <p>Phone Number Validation only for North America</p>	<p>Performs Syntax checks, checks domain and whether can it accept mail, conducts inline smtp conversations and proprietary real time verification that detects recipient level validity for domains that do not provide standard responses and have an external return path for recipient response.</p>	

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			<p>Applies a scoring methodology with specific classification messages</p> <p>Validates phone numbers in real time. Can validate that is a mobile number and can SMS customers</p> <p>Response rates for phone numbers and addresses in seconds; Email validation in seconds</p>	
<p><b>Uniform Postal Union Postal Technology Center Addressing Unit</b></p>	<p>Established in 1874, the UPU is the second oldest international organization worldwide. As a specialized agency of the United Nations, with its 192 member countries, the UPU is the primary forum for cooperation between postal sector players. It helps to ensure a truly universal network of up-to-date products and services.</p> <p>It is the authoritative source of postal address information for its member countries,</p>	<p>Postal Address syntactic validation, operational validation</p> <p>Telephone number syntactic validation</p> <p>Some identity validation possible</p>	<p>The PTC which is an operational unit within the UPU has been providing for more than 15 years mission-critical 24*7 software suites to Designated Postal Operators in the areas of:</p> <ul style="list-style-type: none"> <li>• International mail management (IPS suite)</li> <li>• International and domestic postal Money Orders and Clearing (IFS suite)</li> <li>• Postal Customs Declarations management (CDS)</li> <li>• Together with a full-blown EDI network with 10 Million EDI messages per month and the quality &amp; monitoring applications to ensure real-time management of cross-border postal delivery quality.</li> </ul>	<p><b>S42 License fee:</b></p> <ul style="list-style-type: none"> <li>- UPU Standards can issue a global license for ICANN and ICANN can redistribute the information needed to the Registrars.</li> <li>- License for "above 30 workstations" at: 11,480.00 CHF (US\$ 12,575.00).</li> </ul> <p><b>Verification of address data</b></p> <p>FREE - Postal Addressing Systems information (included in the POST*CODE DataBase license)</p> <p>Information, on a country-by-country basis, is also available to any public at: <a href="http://www.upu.int/en/activities/addressing/postal-addressing-systems-in-member-countries.html">http://www.upu.int/en/activities/addressing/postal-addressing-systems-in-member-countries.html</a></p> <p>Reference data/comparison data :</p>

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			<p>For the IPS suite there is a real-time check of all parameter data related to international postal traffic against which each EDI message on the network is monitored.</p> <p>In the IFS suite – dealing with money orders – there are functions (must be) that allow the identification of persons (know-your-customer) as well as possibilities to check persons against existing international and national Black Lists (e.g. OFAC, CTF...)</p> <p>UPU’s Postal Technology Centre is the global repository with 190 postal operators sending EDI messages for each barcoded postal item, with 10 Million of messages per month and Terabytes of data in our Data Warehouse for monitoring and reporting.</p> <p>Billions of international addresses are corrected against the Universal POST*CODE® DataBase.</p> <p>Against a database at UPU, response rates should be near-real-time (milliseconds to seconds).</p>	<p>Universal POST*CODE DataBase data licensing (examples)</p> <p>POST*CODE DataBase Developer License (example for a software service provider)</p> <ul style="list-style-type: none"> <li>- Initial License fee : CHF 11,968.00 annually (can be renewed)</li> <li>- Amortization possible at any time by switching to a standard license (in-house or commercial purposes)</li> </ul> <p>POST*CODE DataBase standard License (example for ICANN)</p> <ul style="list-style-type: none"> <li>- Annual license fee, Standard package, World option: 10,880.00 CHF</li> <li>- Complementary annual usage license fee (users, address volume):</li> </ul> <p>Licensing flexibility: Regarding the POST*CODE licensing, the data licensing above will be tailored to ICANN’s precise usage. It can be evolving starting with lower complementary usage fee and coming to a fee close to the exact usage once in production. Anyway, 3 months, in case of a standard license, will not be billed for ICANN’s development and testing period.</p> <p>Specific countries additional licenses (not mandatory but maybe added depending the data check level down to street and house number in a street). Ask for our “Specific countries” document to get an overview on such additional licenses.</p>



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## SUMMARY OF VALIDATION APPROACHES

Data Element	Validation Steps
Postal Address	<ol style="list-style-type: none"> <li>1. Government documentation such as local mailing authority or UPU databases</li> <li>2. A database verified as providing reliable information</li> <li>3. Utility or financial information associated with the address (such as payment with a credit card corresponding to the registrant address)</li> <li>4. An activation letter mailed to the address</li> <li>5. Local mailing authority where one exists</li> <li>6. When a local mailing authority does not exist, referencing proprietary datasets which provide additional address data beyond government sources</li> <li>7. Validation of postal addresses Using Google's Maps API</li> <li>8. Validation through geocoding services</li> <li>9. It is possible to have a fully verified address, partially verified address, or un-verified address. It is also possible to verify to the sub-premise level, premise level, locality level, postal code level, or administrative area level. The combination of these codes can be used to generate a score based on the client requirements.</li> </ol>
Email	<ol style="list-style-type: none"> <li>1. E-mail is validated using a ping-back system that confirms the registrant's control over the email address</li> <li>2. Validate the syntax of the domain</li> <li>3. Validate the domain name exists of an email address</li> <li>4. For email verification products, a known limitation is validating email addresses that belong to an accept-all domain. If a mail server is accept-all, it will not be possible to validate whether the mailbox is deliverable</li> <li>5. Validate the Email address via mailserver interrogation to validate its existence</li> <li>6. Syntax, mx, domain, and fuzzy, and spelling corrections</li> <li>7. Email addresses must conform to RFC 5322</li> </ol>
Telephone	<ol style="list-style-type: none"> <li>1. Calling the specified number and obtaining an affirmative response deemed sufficient to conclude that the registrant is accessible at the telephone number</li> <li>2. Confirming that the number is listed in a database verified as providing reliable contact information and verifying that the number is associated with the registrant</li> <li>3. Accepting a call from the specified telephone number</li> <li>4. An automated call-back system that confirms the number is able to receive communication</li> <li>5. The service will verify the number as current OR update the landline phone number given OR append a landline phone number where none is given and one is available.</li> <li>6. An additional service can be provided that returns attributes about the address and phone, such as phone type (mobile / landline), listing type (business /residential) and whether the phone appears to be active</li> <li>7. Checks against US switch data, global reference data</li> <li>8. Checks against Do Not Call Registry to see if number is valid (but not who owns it).</li> <li>9. Telephone numbers must follow the ITU-T E.164 notation for international telephone numbers</li> </ol>

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Data Element	Validation Steps
<b>Identity</b>	
<b>Individuals</b>	<ol style="list-style-type: none"> <li>1. Through a face-to-face verification with a trusted agent or an entity typically responsible for conducting identity verification (such as a notary, attorney, accountant, or similar professional)</li> <li>2. Via a remote vetting process that confirms the identity of the individual, such as a record check on an identifying number</li> <li>3. Using a photo ID document provided by the registrant</li> </ol>
<b>Legal Entities</b>	<ol style="list-style-type: none"> <li>1. Confirming the entity's status directly with a government body responsible for the formation or creation of the entity</li> <li>2. Payment using a mechanism linked to the registrant's name or address</li> <li>3. By confirming the entity's existence using reliable data sources</li> <li>4. By confirming the entity's existence using account information tied to the entity's name, although this method is not recommended</li> <li>5. In the Universal POST*CODE DataBase, the Organization table records some businesses for some countries (businesses with dedicated PO boxes or not)</li> </ol>
<b>Requester's Authority to Act on behalf of legal Entity</b>	<p>ICANN should consider requiring the validator to verify the requester's authority to act for a legal entity when registering a domain. This can be done by:</p> <ol style="list-style-type: none"> <li>1. Requiring that the contact email as verified through the ping-back be associated with a domain name held by the organization</li> <li>2. Requiring that the contact's phone be associated with the phone numbers controlled by the organization</li> <li>3. Contacting the organization and confirming the contact's authority</li> <li>4. Requiring that the registrant contact information match the contact information</li> </ol>
<b>Unique Identifier</b>	<ol style="list-style-type: none"> <li>1. <b>Digicert:</b> DigiCert creates a unique identifier for each registrant and point of contact provided through its system. This identifier can be submitted through the API to reuse verified information. However DigiCert recommends that information older than 13 months be re-verified. Even after 13 months, the contact ID can still be used by the registrant to simplify the data entry task and ensure name uniqueness. The contact ID (or auth code) can be linked to a specific entity within DigiCert's systems. Once a contact ID is assigned, the ID is never re-assigned.</li> <li>2. To ensure uniqueness within WHOIS, an entity with the same name and address is required to provide the contact ID in connection with a new registration. A failure to provide this contact ID will result in a warning to the registrar and possibly failure of the verification. Tying the contact ID to a name/address combination is necessary because of the global nature of WHOIS compared to the local nature of business name registrations.</li> <li>3. MelissaData: AddressKey and MatchKey can be generated from the response data ensuring a unique contact identifier</li> <li>4. AddressDoctor can easily create a unique contact identifier which will match postal address data (or any other data) to that identifier for use &amp; identification across multiple domain name registrations.</li> <li>5. UPU has a PostID framework that allows a check on the person / email / telephone number only if he/she was identified by the local post and this post is part of our PostID framework.</li> </ol>
<b>Authority of Contact:</b>	DigiCert recommends verifying the authority of the contact by establishing a logical connection between the registrant organization and contact. This verification can also confirm the contact's role.

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Data Element	Validation Steps
<b>Verification of other data elements</b>	DigiCert recommends that each field in the RDS record undergo some minimal verification. For example, a syntactic check or identity verification process can verify the registrant type. The registrant fax and SMS are verifiable using a ping-back system.
<b>Email reputation scoring</b>	<p>SDF can identify Emails used in combination with various malicious activities including malware Related domain registration, Hacker forum activity, and Spamming or phishing activity.</p> <p>SDF checks to see if an email address has ever been seen before in a domain name</p>
<b>Reputation of Postal Addresses</b>	SDF: Reputation of postal Addresses is currently In development. This will provide a score based upon previously observed activity such as association of whois address data on a known malicious domain. (SPF)
<b>IP Addresses</b>	SDF currently Uses limited historical Data to score IPs. IP Reputation is notoriously tricky without very recently observed activity data; historical can lead to false positives. A planned addition In development by SDF is the Detection of Proxy addresses and TOR usage which indicates an intentional attempt to obfuscate one's IP address.