

25. Extensible Provisioning Protocol (EPP).

Public Interest Registry (PIR) has been successfully managing .ORG, one of the internet's original gTLDs, for over nine years. PIR uses Afilias Limited as the registry backend service provider who will also support this gTLD. Afilias has experience managing registrations for over a decade and supports comprehensive registration lifecycle services including the registration states, any modifications required with the introduction of any new ICANN policies, and the operation of a state-of-the art Extensible Provisioning Protocol (EPP) Shared Registration System (SRS).

Afilias has been a pioneer and innovator in the use of EPP. .INFO was the first EPP-based gTLD registry and launched on EPP version 02/00. Afilias has a track record of supporting TLDs on standards-compliant versions of EPP. Afilias will operate the EPP registrar interface as well as a web-based interface for this gTLD in accordance with RFCs and global best practices. In addition, Afilias will maintain a proper OT&E (Operational Testing and Evaluation) environment to facilitate registrar system development and testing.

Afilias' EPP technical performance meets or exceeds all ICANN requirements as demonstrated by:

- A completely functional, state-of-the-art, EPP-based SRS that currently meets the needs of various TLDs and will meet this gTLD's needs;
- A track record of success in developing extensions to meet client and registrar business requirements such as multi-script support for IDNs;
- Supporting six ICANN TLDs on EPP: .INFO, .ORG, .MOBI, .AERO, .ASIA and .XXX
- EPP software that is operating today and has been fully tested to be standards-compliant;
- Proven interoperability of existing EPP software with ICANN-accredited registrars; and,
- An SRS that currently processes over 200 million EPP transactions per month for both .INFO and .ORG. Overall, Afilias processes over 700 million EPP transactions per month for all 16 TLDs under management.

The EPP service is offered in accordance with the performance specifications defined in the new gTLD Registry Agreement, Specification 10.

EPP Standards

The Afilias registry system complies with the following revised versions of the RFCs and operates multiple ICANN TLDs on these standards, including .INFO, .ORG, .MOBI, .ASIA and .XXX. The systems have been tested by our Quality Assurance (QA) team for RFC compliance, and have been used by registrars for an extended period of time:

- 3735 - Guidelines for Extending EPP
- 3915 - Domain Registry Grace Period Mapping
- 5730 - Extensible Provisioning Protocol (EPP)
- 5731 - Domain Name Mapping
- 5732 - Host Mapping
- 5733 - Contact Mapping
- 5734 - Transport Over TCP
- 5910 - Domain Name System (DNS) Security Extensions Mapping for the Extensible Provisioning Protocol (EPP)

This gTLD will support all valid EPP commands. The EPP commands discussed below are in operation today and will be made available for this gTLD. See attachment #25-a for the base set of EPP commands and copies of Afilias XSD schema files, which define all the rules of valid, RFC compliant EPP commands

and responses that Afilias supports. Any customized EPP extensions, if necessary, will also conform to relevant RFCs.

Afilias staff members actively participated in the Internet Engineering Task Force (IETF) process that finalized the new standards for EPP. Afilias will continue to actively participate in the IETF and will stay abreast of any updates to the EPP standards.

EPP Software Interface and Functionality

Afilias will provide all registrars with a free open-source EPP toolkit. Afilias provides this software for use with both Microsoft Windows and Unix/Linux operating systems. This software, which includes all relevant templates and schema defined in the RFCs, is available on sourceforge.net and will be available through the registry operator's website.

Afilias' SRS EPP software complies with all relevant RFCs and includes the following functionality:

- EPP Greeting: A response to a successful connection returns a greeting to the client. Information exchanged can include: name of server, server date and time in UTC, server features, e.g., protocol versions supported, languages for the text response supported, and one or more elements which identify the objects that the server is capable of managing;
- Session management controls: <login> to establish a connection with a server, and <logout> to end a session;
- EPP Objects: Domain, Host and Contact for respective mapping functions;
- EPP Object Query Commands: Info, Check, and Transfer (query) commands to retrieve object information; and,
- EPP Object Transform Commands: five commands to transform objects: <create> to create an instance of an object, <delete> to remove an instance of an object, <renew> to extend the validity period of an object, <update> to change information associated with an object, and <transfer> to manage changes in client sponsorship of a known object.

Currently, 100% of the top domain name registrars in the world have software that has already been tested and certified to be compatible with the Afilias SRS registry. In total, over 375 registrars, representing over 95% of all registration volume worldwide, operate software that has been certified compatible with the Afilias SRS registry. Afilias' EPP Registrar Acceptance Criteria are available in attachment #25-b, EPP OT&E Criteria.

Free EPP Software Support

Afilias analyzes and diagnoses registrar EPP activity log files as needed and is available to assist registrars who may require technical guidance regarding how to fix repetitive errors or exceptions caused by misconfigured client software.

Registrars are responsible for acquiring a TLS/SSL certificate from an approved certificate authority, as the registry-registrar communication channel requires mutual authentication; Afilias will acquire and maintain the server-side TLS/SSL certificate. The registrar is responsible for developing support for TLS/SSL in their client application. Afilias will provide free guidance for registrars unfamiliar with this requirement.

Registrar Data Synchronization

There are two methods available for registrars to synchronize their data with the registry:

- Automated synchronization: Registrars can, at any time, use the EPP <info> command to obtain definitive data from the registry for a known object, including domains, hosts (nameservers) and contacts.
- Personalized synchronization: A registrar may contact technical support and request a data file containing all domains (and associated host (nameserver) and contact information) registered by

that registrar, within a specified time interval. The data will be formatted as a comma separated values (CSV) file and made available for download using a secure server.

EPP Modifications

There are no unique EPP modifications planned for this gTLD.

All ICANN TLDs must offer a Sunrise as part of a rights protection program. Afilias uses EPP extensions that allow registrars to submit trademark and other Intellectual Property Rights (IPR) data to the registry. These extensions are:

- An <ipr:name> element that indicates the name of Registered Mark.
- An <ipr:number> element that indicates the registration number of the IPR.
- An <ipr:ccLocality> element that indicates the origin for which the IPR is established (a national or international trademark registry).
- An <ipr:entitlement> element that indicates whether the applicant holds the trademark as the original "OWNER", "CO-OWNER", "LICENSEE", or "ASSIGNEE".
- An <ipr:appDate> element that indicates the date the Registered Mark was applied for.
- An <ipr:regDate> element that indicates the date the Registered Mark was issued and registered.
- An <ipr:class> element that indicates the class of the registered mark.
- An <ipr:type> element that indicates the Sunrise phase the application applies for.

Note that some of these extensions might be subject to change based on ICANN-developed requirements for the Trademark Clearinghouse.

EPP Resourcing Plans

Since its founding, Afilias has focused on delivering secure, stable and reliable registry services. Several essential management and staff who designed and launched the Afilias registry in 2001 and expanded the number of TLDs supported, all while maintaining strict service levels over the past decade, are still in place today. This experiential continuity will endure for the implementation and ongoing maintenance of this gTLD. Afilias operates in a matrix structure, which allows its staff to be allocated to various critical functions in both a dedicated and a shared manner. With a team of specialists and generalists, the Afilias project management methodology allows efficient and effective use of its staff in a focused way.

108 Afilias team members directly contribute to the management and development of the EPP based registry systems. As previously noted Afilias is an active member of IETF and has a long documented history developing and enhancing EPP. These contributors include 11 developers and 14 QA engineers focused on maintaining and enhancing EPP server side software. These engineers work directly with business staff to timely address existing needs and forecast registry/registrar needs to ensure the Afilias EPP software is effective today and into the future. A team of eight data analysts work with the EPP software system to ensure that the data flowing through EPP is securely and reliably stored in replicated database systems. In addition to the EPP developers, QA engineers, and data analysts, other EPP contributors at Afilias include: Technical Analysts, the Network Operations Center and Data Services team members.