THE RESPONSE FOR THIS QUESTION USES ANGLE BRACKETS (THE "<" and ">" CHARACTERS, or < and >), WHICH ICANN INFORMS US (CASE ID 11027) CANNOT BE PROPERLY RENDERED IN TAS DUE TO SECURITY CONCERNS. *HENCE, THE ANSWER BELOW AS DISPLAYED IN TAS MAY NOT RENDER THE FULL RESPONSE AS INTENDED.* THEREFORE, THE FULL ANSWER TO THIS QUESTION IS ALSO ATTACHED AS A PDF FILE, ACCORDING TO SPECIFIC GUIDANCE FROM ICANN UNDER CASE ID 11027.

25 EPP
Answers for this question (#25) are provided based on the intended back-end provider of registry services for this TLD.

The future registry back-end service provider will have to be a pioneer and innovator in the use of EPP.. The registry back-end service provider will have a track record of supporting TLDs on standards-compliant versions of EPP. It will also operate the EPP registrar interface as well as a web-based interface for this TLD in accordance with RFCs and global best practices. In addition, the registry back-end service provider will maintain a proper OT&E (Operational Testing and Evaluation) environment to facilitate registrar system development and testing.

The registry back-end service provider's EPP technical performance will meet or exceed all ICANN requirements as demonstrated by:
• A completely functional, state-of-the-art, EPP-based SRS that currently meets the needs of various gTLDs and will meet this new TLD'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 multiple ICANN gTLDs on EPP
• 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.
The EPP service will be offered in accordance with the performance specifications defined in the new gTLD Registry Agreement, Specification 10.

EPP Standards
The future registry system will comply with the following revised versions of the RFCs and operate multiple ICANN TLDs. .The systems will be tested by our Quality Assurance ("QA") team for RFC compliance, and will have to be 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 TLD will support all valid EPP commands. The following EPP commands are in operation today and will be made available for this TLD. See attachment #25a for a similar example of the base set of EPP commands and examples of the registry back-end service provider's XSD schema files, which define all the rules of valid, RFC compliant EPP commands and responses that the registry back-end service provider will support. Any customized EPP extensions, if necessary, will also conform to relevant RFCs.

The registry back-end service provider's staff members shall have actively participated in the Internet Engineering Task Force (IETF) process that finalized the new standards for EPP. It will also continue to actively participate in the IETF and will stay abreast of any updates to the EPP standards.

EPP software interface and functionality
The registry back-end service provider will provide all registrars with a free open-source EPP toolkit. It will provide 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.

The registry back-end service provider's SRS EPP software will comply with all relevant RFCs and include similar functionality as follows:
• 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.

It is expected that 100% of the top domain name registrars in the world have software that has already been tested and certified to be compatible with the registry back-end service provider's SRS registry. The registry back-end service provider's EPP Registrar Acceptance Criteria examples are available in attachment #25b, EPP OT&E Criteria.

        Free EPP software support
The intended registry back-end service provider will analyze and diagnose registrar EPP activity log files as needed and will be 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; the registry back-end service provider will acquire and maintain the server-side TLS/SSL certificate. The registrar is responsible for developing support for TLS/SSL in their client application. The registry back-end service provider 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 TLD.

All ICANN TLDs must offer a Sunrise as part of a rights protection program. The registry back-end service provider will use 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" 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
The registry back-end service provider will be focusing on delivering secure, stable and reliable registry services. There will be management and staff with extensive experience in designing and launching the registry systems and expanding the number of TLDs where necessary. The registry back-end service provider will operate in a matrix structure, which will allow 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 registry back-end service provider's project management methodology will allow efficient and effective use of our staff in a focused way.

The registry back-end service provider's team members will directly contribute to the management and development of the EPP based registry systems. It will be an active member of IETF and will have a long documented history developing and enhancing EPP. These contributors may include include developers and QA engineers focused on maintaining and enhancing EPP server side software.These engineers will work directly with business staff to timely address existing needs and forecast registry/registrar will ensure the EPP software is effective today and into the future. A team of data analysts will 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 will include: Technical Analysts, the Network Operations Center and Data Services team members.