



# for Top-Level Domains

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## Service Specification

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## Service Specification

### Standard Feature List



TANGO is operated from its own data center in Germany.  
 All components are in a redundant setup.



TANGO is operated under the  
 high security standard  
 ISO/IEC 27001

#### ABOUT TANGO Registry Services®

TANGO Registry Services® is a technical platform for the operation of Top-Level Domains (TLDs) or – more generally speaking – domain name extensions. It includes all components and services needed to run a TLD registry, in particular a Shared Registry System (SRS), a WHOIS/RDAP service, a connection to a globally distributed name server infrastructure, a Control Panel for convenient administration, Registry-Registrar communication facilities, operation in a Germany-based data center, connection to a European data escrow provider (optional) and 24 x 7 technical monitoring and support. Due to its highly flexible design, TANGO Registry Services® is capable of handling ccTLDs as well as gTLDs.

This document describes the main features of TANGO Registry Services® being available in a standard installation. Customer-tailored modifications or enhancements are possible.

TANGO Registry Services® is a product of Knipp Medien und Kommunikation GmbH, an ISO/IEC 27001 certified provider of high quality software solutions for the domain industry.

## HIGHLIGHTS

TANGO Registry Services<sup>®</sup>, which is entirely written in *Java*, combines a great user experience with support for state-of-the-art technologies and a high degree of customizability.

### Key Features

- full adherence to all **EPP 1.0** standards
- full support for **Internationalized Domain Names (IDNs)** as full-value domain objects or as domain name variants
- full compliance with all **gTLD-related ICANN policies and SLAs**
- full support for both **IPv4 and IPv6**
- a sophisticated **user and privilege system** implementing role-based access control
- a **web-based Control Panel** with convenient administration and registration-related features

### Technical Operation

- operated in our own **data center in Dortmund, Germany**
- additionally operated at a geographically separated **secondary site in Amsterdam, Netherlands**, to allow for a rapid recovery of services in case of a local force majeure (optional)
- frequent incremental and full **data backups**
- **redundant hardware design** and **load balancing** facilities to guarantee high availability
- on-site (standard) and remote (optional) **data replication** to ensure a seamless continuation of services in case of a database failure

## SHARED REGISTRY SYSTEM (SRS)

The SRS is responsible for managing domain registrations by accepting requests from Registrars related to the creation, update, renewal and deletion of domains. For the purpose of load balancing and high availability, two SRS frontends are in place for each TANGO Registry Services<sup>®</sup> instance.

### Features

- full **EPP 1.0 support**
- full **DNS Security Extensions (DNSSEC) support**
- highly customizable support for **launch phases** to allow for implementing individual marketing models or (ICANN-)obligations such as Sunrise or Claims phases
- highly customizable **tariff system** for individual pricing strategies such as premium domains or promotional campaigns
- separate instances for **production** and **OT+E** (operational test and evaluation) to provide a realistic testing environment to Registrars
- separate **acceptance** and **staging** instances for the rollout of new features for Registries and Registrars, respectively (optional)

TANGO Registry Services<sup>®</sup> are fully ICANN compliant and meet at least the following specs (monthly measurement):

SRS availability	≤ 864 min of downtime (≈ 98 %)
SRS session-command RTT	≤ 4000 ms, for at least 90 % of the commands
SRS query-command RTT	≤ 2000 ms, for at least 90 % of the commands
SRS transform-command RTT	≤ 4000 ms, for at least 90 % of the commands

## CONTROL PANEL

In order to keep the barrier low for low-volume Registrars on the one hand and to provide easy access to registry administration functionality, accounting-related tasks, reporting facilities and technical documentation on the other hand, each TANGO Registry Services<sup>®</sup> instance comes with a Web-based Control Panel.

### Features

- *administration of Registry objects* (domains, contacts and hosts) via intuitive dialogs and wizards
- sophisticated *search and filter tools* for domain portfolio analyses
- access to the complete *history of domains, contacts and hosts* for auditing and review purposes
- guided step-by-step *Registrar onboarding* tool
- *accounting tools* for managing Registrar deposits and book entries
- highly flexible editor for *tariff structures*
- convenient *data disclosure policy* settings
- *user and role management*
- integrated *issue system* with pre-defined ticket types and Registry-specific workflows for managing and tracking the communication between Registry and Registrar personnel
- overview of *Registry launch phases* and *contention resolution tools* for application-oriented launch phases
- *Registrar impersonation function* to facilitate Registrar support tasks
- access to *user manuals* and *technical specifications*
- *multi-language support*



## WHOIS and RDAP

To support registries in providing publicly available domain registration data, e. g. as required by ICANN for gTLDs, TANGO Registry Services<sup>®</sup> comes with both a fully featured “classic” WHOIS service and a service providing a Registration Data Access Protocol (RDAP) interface to the registration data.

### Features

- *port 43 WHOIS* implementation
- time-based WHOIS query *rate limiting* to prevent data mining and denial-of-service attacks
- *IP whitelisting* to define rate limiting exclusions
- CAPTCHA-protected publicly available *WHOIS Web interface*
- RESTful *RDAP interface* to the domain registration data
- *physically decoupled from SRS* for optimizing performance and security



## COMMUNICATION

Communication is crucial to business success. TANGO Registry Services® supports this insight by providing useful and diverse facilities for the intra-registry communication (reporting) as well as for the communication between Registries, Registrars and third parties such as ICANN. In particular, the TANGO Registry Services® user has the following communication tools and channels at his disposal:

- **dashboard statistics** for quick overviews of registration activity and executive summaries
- **individual domain portfolio reports** depending on configurable filter criteria
- automated monthly **transactions and activity reports** (for TLDs of ICANN's New gTLD Program)
- support for the convenient **handling of Uniform Rapid Suspension (URS) cases**
- bulk **Registrar e-mail notifications** for convenient announcements of downtimes, updates, upcoming marketing campaigns etc.
- **Control-Panel-integrated issue system** for structured and traceable intra-Registry and Registry-Registrar communication

## CUSTOMIZABILITY

To meet individual customer requirements, TANGO Registry Services® has a variety of customization options. Consulting services for finding the optimal configuration fitting the customer's needs and strategies can be added as a solution from a single source.

### Features

- sophisticated **tariff system** allowing for launch-phase- and Registrar-dependent configuration; prices for domain name registration, transfer, renewal and restoration; different pricing models (fixed, linear and lookup)
- highly flexible **launch phase configuration** for modeling and handling "classical" sunrise and landrush phases, trademark-related phases, premium domains and many more individual launch and marketing strategies
- individual **blocking** of unwanted domain names
- support for temporary **promotions** with special pricing models accessible for Registrars by supplying promotion codes
- **whitelabel-ready** Control Panel for branding TANGO Registry Services® with the customer's logo, colors, etc.

## SUPPORT

All components of a TANGO Registry Services® instance are operated in our own data center, thus removing the technical responsibility from the customer and minimizing reaction times in the unlikely case of a technical failure.

Besides, the following support services are included:

- **24 x 7 monitoring** of all technical components
- **phone support hotline** for Registry personnel
- **technical support** via the integrated issue system
- **technical and administrative support for the launch of a new TLD**, e. g. execution of a pre-delegation test for new gTLDs

TANGO Registry Services® are fully ICANN compliant and meet at least the following specs (monthly measurement):

Whois availability	≤ 864 min of downtime (≈ 98 %)
Whois query-RTT	≤ 2000 ms, for at least 95 % of the queries
Whois update time	≤ 60 min, for at least 95 % of the probes

## CONNECTIONS TO EXTERNAL SYSTEMS

For a successful domain name registry operation, several technical components of potentially different providers need to work hand in hand. TANGO Registry Services® already has pre-configured connections to such external systems in order to work “out of the box”.



**TANGO uses ironDNS® as its main DNS provider**

### Domain Name System (DNS)

TANGO Registry Services® uses the ironDNS® name server infrastructure to disseminate the TLD zone data. Driven by the hardware and software diversity principle, ironDNS® provides a globally distributed high-availability name server infrastructure offering Unicast and Anycast services. Being also a product of Knipp Medien und Kommunikation GmbH, ironDNS® is developed and operated with the same strict quality requirements as TANGO Registry Services®.

### Data Escrow Providers

An important building block of disaster recovery and business continuity management is data escrow. Operators of gTLD registries are even obliged by ICANN to perform data escrows regularly. TANGO Registry Services® has a built-in data escrow module being easily adaptable to a variety of data escrow provider interfaces. Each TANGO Registry Services® customer is free to choose a data escrow provider that best suits his needs; running Registry instances already successfully communicate with German, European and international data escrow providers such as DENIC, NCC and Iron Mountain.

### Trademark Clearinghouse

The Trademark Clearinghouse (TMCH) verifies and provides information about registered trademarks and informs trademarks holders about the usage of their trademarks in domain names. Registries participating in ICANN's New gTLD Program are obliged to consult the TMCH prior to domain registrations in certain launch phases. TANGO Registry Services® is equipped with a TMCH connector that automatically handles the communication with the TMCH and performs all contractually required actions.

TANGO Registry Services® are fully ICANN compliant and meet at least the following specs (monthly measurement):

DNS service availability	0 min downtime = 100 % availability
DNS name server availability	≤ 432 min of downtime (≈ 99 %)
UDP/TCP DNS resolution RTT	≤ 500/1500 ms for at least 95 % of queries
UDP DNS resolution RTT	≤ 500 ms for at least 95 % of queries
DNS update time	≤ 60 min, for at least 95 % of the probes

## COMPLIANCE

Standards compliance is essential for a smooth interaction between technical systems. TANGO Registry Services<sup>®</sup> adheres to all relevant standards and de-facto standards of the domain business and is also compliant with ICANN's requirements in the context of new gTLDs.

### EPP

- **RFC 3915:** Domain Registry Grace Period Mapping for the Extensible Provisioning Protocol (EPP)
- **RFC 5730:** Extensible Provisioning Protocol (EPP)
- **RFC 5731:** Extensible Provisioning Protocol (EPP) Domain Name Mapping
- **RFC 5732:** Extensible Provisioning Protocol (EPP) Host Mapping
- **RFC 5733:** Extensible Provisioning Protocol (EPP) Contact Mapping
- **RFC 5734:** Extensible Provisioning Protocol (EPP) Transport over TCP
- **RFC 5910:** Domain Name System (DNS) Security Extensions Mapping for the Extensible Provisioning Protocol (EPP)
- **draft-ietf-eppext-launchphase-07:** Launch Phase Mapping for the Extensible Provisioning Protocol (EPP)
- **draft-ietf-regext-epp-fees-00:** Registry Fee Extension for the Extensible Provisioning Protocol (EPP)

### WHOIS and RDAP

- **RFC 3912:** WHOIS Protocol Specification
- **RFC 7480:** HTTP Usage in the Registration Data Access Protocol (RDAP)
- **RFC 7481:** Security Services for the Registration Data Access Protocol (RDAP)
- **RFC 7482:** Registration Data Access Protocol (RDAP) Query Format
- **RFC 7483:** JSON Responses for the Registration Data Access Protocol (RDAP)
- **RFC 7484:** Finding the Authoritative Registration Data (RDAP) Service

### Data Escrow

- **draft-arias-noguchi-dnrd-objects-mapping-05:** Domain Name Registration Data (DNRD) Objects Mapping
- **draft-arias-noguchi-registry-data-escrow-07:** Registry Data Escrow Specification

TANGO Registry Services<sup>®</sup> is a product of

Knipp Medien und Kommunikation GmbH  
 Technologiepark  
 Martin-Schmeißer-Weg 9  
 44227 Dortmund  
 Germany

[www.tango-rs.com](http://www.tango-rs.com)  
[info@tango-rs.com](mailto:info@tango-rs.com)