

# TECHNICAL COMMUNICATION RULES

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## 1. Introduction

This document describes communication between registrars and the central registry. Registrars may communicate using any tools compatible with conditions set out in this document.

## 2. Communication protocol

- The Extensible Provisioning Protocol (EPP) is used as communication protocol. The EPP is a XML-based protocol. See RFC 3730 (<http://www.rfc-archive.org/getrfc/rfc=3730>) for a description of its basic properties and propagation methods.
- Transport layer for the EPP messages is provided by TCP/IP protocol, secured by TLS. EPP communication via TCP/IP is defined in RFC 3734 (<http://www.rfc-archive.org/getrfc/rfc=3734>).
- Commands used for the Contact object are based on an EPP extension for contacts, defined in RFC 3733 (<http://www.rfc-archive.org/getrfc/rfc=3733>[\[http://www.rfc-archive.org/getrfc/rfc=3731\]](http://www.rfc-archive.org/getrfc/rfc=3731)). Changes in this specification include addition of new optional items in the announcement Email: The VAT identification number (VAT), The personal identification number (SSN), one postal address instead of two and a list of contacts held by the registrar.
- Commands used for the Name server group object are partially based on an EPP extension for general servers, defined in RFC 3732 (<http://www.rfc-archive.org/getrfc/rfc=3732>). A list of name server groups held by the registrar is a specific extension.
- Commands used for the Domain and ENUM domain object are based on an EPP extension for domain names, defined in RFC 3731 (<http://www.rfc-archive.org/getrfc/rfc=3731>). Changes in this specification include replacement of list of nameservers by a link to nameserver group object, limitation of domain transfer - which cannot be delayed and must be done immediately, simplification of the contact list to a single contact type (admin) and list of domains held by the registrar.
- An ENUM domain also includes date of validation.

- Links to these topics are provided in the attachment.

### 3. Login

- Each individual EPP communication requires registrar to authenticate themselves using their Username and password within the EPP command login. Username and password are assigned to registrars by tzNIC.
- The TLS process requires a client certificate issued by tzNIC. The certificate fingerprint will be included into the registry for authentication process. The system accepts commercial certificates issued by any recognize certification authority or certificates generated directly by the tzNIC. In the test mode, only certificates issued by the tzNIC may be used.

### 4. Identifier rules

- Identifiers for objects (id for contacts and nameserver groups and name for domains) may be created using rules defined in this document and in XSD schemas.
- The domain name corresponds to standard RFC 1035 (<http://www.rfc-archive.org/getrfc?rfc=1035>). The registry ignores case, all upper case letters are changed to lower case. The registry ignores case, all upper case letters are changed to lower case.
- The contact handle: the registry ignores case, all lower case letters are changed to upper case.
- The nameserver group handle: the registry ignores case, all lower case letters are changed to upper case.
- Though not mandatory, tzNIC recommends the following form to be adopted when naming:-
  - i. **CONTACTS** identifiers: **C- <ORGANIZATION-SERIAL\_No.>**. Example, C-TZNIC-01
  - ii. **NAME SERVER SETS** identifiers: **NS- <ORGANIZATION-SERIAL\_No.>**. Example, NS-TZNIC-01

### 5. Deletion of unused contacts and nameserver sets; protective period for deleted objects

- Contacts that have not been assigned during the period of 6 preceding months to any domain name or name server set and where no change has been performed are deleted by the central registry.
- Name server sets that have not been assigned during the period of 6 preceding months to any domain name or and where no change has been performed are deleted by the central registry.
- Contacts and name server sets that are deleted by the central registry because they were not used or by a registrar using an appropriate EPP command are put to a protective period of 2 months from the deletion date.
- Within the protective period, the identifier (handle) of the given contact or name server set cannot be used as an identifier for a newly registered object (contact, name server set).
- Once the protective period expires, the identifier (handle) can be used again to register a new contact or a name server set.

## 6. Technical test description

Technical tests of nameserver set are done to monitor status of nameservers to which domain names are delegated. Tests do not have influence on including or excluding a domain to/from a zone. Test results are only used as information for nameserver set administrators or registrars.

Technical tests include individual tests applied to a nameserver within a nameserver set in a certain order. Each test is focused on a single specific item (nameserver property). The test results are status messages:

- Passed test
- Did not pass test
- Results unknown

The last result is a status when test ended in an unexpected error or unexpected circumstance, which prevents results from being evaluated as passed/did not pass.

### Table 1. Individual tests

Test Name	Importance	Prerequisite Tests	Characteristics
Existence	1		Tests whether DNS is running
Presence	2	Existence	Tests presence of domain record at the DNS server
Authoritative	3	Existence, Presence	Tests whether DNS server's reply to a given domain is authoritative
Autonomous	4		At least two DNS servers must be part of different autonomous systems
Recursive	5		Tests whether a DNS server is recursive based on what it says about itself
Recursive4all	5	Existence	Tests whether a server is recursive based on a practical test.
Heterogeneous	6	Existence	At least two software-different DNS servers.

Test name is a unique single-word name of the test, which describes the nameserver property being tested. Test importance specifies how important a failure in each test is. Some tests focus on basic functionality of the nameserver and some focus on details, not passing these does not represent a threat to domain delegation. The importance is represented by a 0 to 10 scale. The lower the number the

more important the test is. There are no tests with 0 importance, the highest importance used at the moment is 6. The default setting for technical test level is 3.

## 7. Central registry communication

The table contains a description, time specification and addressees of individual communication types from the Central registry, including poll messages intended for registrars.

**Table 2. Central registry communication**

Type	When	Addressee	Note
Notification	After domain change implementation	Holder's email	
Notification	After contact change implementation	Contact's Email	
Notification	After nameserver set change implementation	Technical contact's Email	
Notification	After registrar change implementation	Holder's email	Both new and original registrar receive as poll message
Sending of domain authorization information	After domain change implementation	Holder's email	
Sending of contact authorization information	After contact change implementation	Contact's email	

Sending of nameserver set authorization information	After nameserver set change implementation	Technical contact's email	
Validation	30 days prior to expiration of validation date		Registrar also receives as a poll message
Validation	15 days prior to expiration of validation date	Holder, administrative contacts	
Validation	On the day of validation expiration	Holder, administrative contacts	Registrar also receives as a poll message
Expiration	30 days prior to expiration date	Holder, administrative contacts	Registrar also receives as a poll message
Withdrawal from zone for expiration	30 days after the expiration date	Holder, administrative, technical contacts of the nameserver set	Registrar also receives as a poll message
Withdrawal from zone – validation	On the day of validation expiration	Holder, administrative, technical contacts of the nameserver set	Registrar also receives as a poll message
Cancellation of domain name	45 days after the expiration	Holder, administrative, technical contacts of the nameserver set	Registrar also receives as a poll message

Cancellation of unused contact or nameserver set	On the day of cancellation	Technical contact of nameserver set	Registrar also receives as a poll message
Technical test results	Upon request		Registrar also receives as a poll
Technical test results	Periodical (usually monthly)	Technical contacts of relevant nameserver set	Registrar also receives as a poll message
Invoices	Monthly	Registrar	Invoice in pdf or xml
Invoices for advanced payment received	After advance payment is received	Registrar	Invoice in pdf or xml

#### ***A. EPP protocol schemes***

1. XSD scheme importing all other definition files:

**<http://tznictznic.or.tz/schema/production/all-1.2.xsd>**

2. XSD scheme for entering EPP commands.

**<http://tznictznic.or.tz/schema/production/epp-1.0.xsd>**

3. XSD scheme for basic EPP protocol data types.

**<http://tznictznic.or.tz/schema/production/eppcom-1.0.xsd>**

4. XSD scheme with contact administration extension.

**<http://tznictznic.or.tz/schema/production/contact-1.2.xsd>**

5. XSD scheme with nameserver group administration extension.

**<http://tznictznic.or.tz/schema/production/nsset-1.2.xsd>**

6. XSD scheme with domain administration extension.  
<http://tznic.or.tz/schema/production/domain-1.2.xsd>
7. XSD scheme with enum domain administration extension.  
<http://tznic.or.tz/schema/production/enumval-1.1.xsd>
8. XSD scheme with more functions added on top of EPP standard  
<http://tznic.or.tz/schema/production/fred-1.0.xsd>
9. XSD schema with common structures on top of eppcom  
<http://tznic.or.tz/schema/production/fredcom-1.1.xsd>

#### ***B. Description of individual functions***

Description of individual EPP functions and meaning of their parameters, together with limiting conditions for their values is available at <http://tznic.or.tz/upload/constr.html>.