

# Rules of Technical Communication

## Table of Contents

1. Introduction.....	1
2. Communication Protocol .....	1
3. Login Data and Communication Limits .....	2
4. Identifier Creation Rules.....	2
5. Deletion of unused contacts, nameserver sets and key sets, protection period for deleted objects .....	2
6. Technical Test Description .....	3
7. Central Registry Communication .....	3
A. EPP Protocol Schemes.....	4
B. Description of Individual Functions .....	5

## 1. Introduction

This document describes communication between registrars and the central registry.

Registrars may communicate using any tools which comply with the requirements set forth in this document.

## 2. Communication Protocol

Extensible Provisioning Protocol (EPP) is used as the communication protocol. The EPP is a XML-based protocol. The description of basic properties and of the extension method is available in RFC 3730 (<http://www.rfc-archive.org/getrfc?rfc=3730>).

The transport layer for EPP messages is provided by TCP/IP protocol with TLS securing. See RFC 3734 for the definition of EPP communication through TCP (<http://www.rfc-archive.org/getrfc?rfc=3734>).

Commands used for handling the *Contact* object are based on the EPP extension for contacts which is defined in RFC 3733 (<http://www.rfc-archive.org/getrfc?rfc=3733>). Changes in the specification include addition of new items to the notification E-mail: VAT identification No., personal identification number and the type thereof, replacement of two postal addresses just by one address and a list of contacts which are held by the registrar.

Commands which are used for handling the *Nameserver Set* object are partially based on an EPP extension for general servers which is defined in RFC 3732 (<http://www.rfc-archive.org/getrfc?rfc=3732>). The specific extension involves the addition of the "Report Level" item which is used for setting the technical test level, a list of Nameservers held by a particular registrar and a list of NameServer Sets belonging to a particular contact.

Commands used for handling the *Key Set* object are partially based on an EPP extension for DNSSEC which is defined in RFC 4310 (<http://www.rfc-archive.org/getrfc?rfc=4310>). The specific extension involves a list of *Key Sets* which are held by a particular registrar and a list of *Nameserver Sets* belonging to a particular contact.

Commands used for handling the *Domain* and *ENUM Domain* objects are based on an EPP extension for domain names which is defined in RFC 3731 (<http://www.rfc-archive.org/getrfc?rfc=3731>). Changes in the specification involve the replacement of the list of nameservers by a link to the *nameserver set* object, addition of a key set, restrictions upon the transfer of domains which cannot be postponed (carried out immediately), simplification of the list of contact persons resulting in just one type of contact (admin) and a list of domains held by the registrar.

In addition, ENUM domain includes the validation date.

Links to the above mentioned schemes are provided in the Appendix.

### **3. Login Data and Communication Limits**

Every single EPP communication starts with the registrar's authentication using their user name and password in the EPP command login. The user name and password are assigned to the registrar by the registry operator.

The TLS security requires a client certificate issued by a recognized certification authority. Registrars must deliver the certificate fingerprint to the registry operator for the purposes of verification procedure. The system accepts commercial certificates issued by any certification authority, which has been accredited for the issuance of qualified certificates in the Czech Republic, or certificates generated directly by the registry operator.

The maximum number of a single registrar's concurrent logins is 5.

An inactive session is closed and the registrar is disconnected after 5 minutes.

After every unsuccessful operation (EPP return code  $\geq 2000$ ), the connection is held for 1 second.

The speed of opening of new connections is limited to 100 per minute. It applies generally to all EPP connections of the registrar.

### **4. Identifier Creation Rules**

Object identifiers (id elements for contacts, nameserver sets and key sets and the name element for domains) may be selected using the rules which are set forth in this document and in respective schedules.

The domain name complies with the RFC 1035 standard (<http://www.rfc-archive.org/getrfc?rfc=1035>). The registry ignores the letter case: all upper-case letters are changed to lower-case letters. The registry ignores the letter case: all upper-case letters are changed to lower-case letters.

Concerning the contact identifier, the registry ignores the letter case: all lower-case letters are changed to upper-case letters.

Concerning the nameserver group identifier, the registry ignores the letter case: all lower-case letters are changed to upper-case letters.

Concerning the key set, the registry ignores the letter case: all lower-case letters are changed to upper-case letters.

### **5. Deletion of unused contacts, nameserver sets and key sets, protection period for deleted objects**

The contacts which, within the previous 6 months, were not assigned to any domain name, nameserver set or key set and, at the same time, no changes were made to such contacts, will be deleted by the central registry.

Nameserver sets which, within the previous 6 months, were not assigned to any domain name and, at the same time, no changes were made to such nameserver set, will be deleted by the central registry.

Key sets which, within the previous 6 months, were not assigned to any domain name and, at the same time, no changes were made to such key sets, will be deleted by the central registry.

The contacts, nameserver sets and key sets which are deleted by the central registry, as a result of not being used, or by the registrar using the respective EPP command are subject to the protection period of 2 months of the deletion.

During the protection period, the identifier (handle) of the contact, nameserver set or key set cannot be used as an identifier of a newly registered object (contact, nameserver set, key set). After the expiry of the protection period, the deleted identifier (handle) may be used again for the registration of a new contact, nameserver set or key set.

## 6. Technical Test Description

Technical tests of the nameserver set are carried out in order to monitor the condition of the nameservers to which domain names are delegated. The tests *do not affect* the inclusion or exclusion of a domain to/from the zone. The test results are only used as information for the nameserver set administrator or for the registrar.

Technical tests represent a set of individual tests which are, in a certain order, applied to a nameserver within a nameserver set. Each test is focused on a single specific feature (nameserver property). The test result is the following status message:

- Test passed
- Test failed
- Unknown result

The last result represents a situation in which the test ended in an unexpected error or unexpected circumstance which prevented the achievement of the passed/failed result.

**Table 1: List of Individual Tests**

Test Name	Importance	Dependable on tests	Description
Existence	1		Tests whether the DNS server is running.
Presence	2	Existence	Tests the presence of the record of the domain on the DNS server.
Authoritative	3	Existence, Presence	Tests whether the DNS server's response to a particular domain is authoritative.
Recursive	4	Existence	Tests whether the DNS server is recursive based on what the DNS server says about itself.
Recursive4all	4	Existence	Tests whether the DNS server is recursive based on a practical test.
Autonomous	5		At least two of the DNS servers must be in different autonomous systems.
Heterogeneous	6	Existence	At least two DNS servers with different software.

The test name is a unique one-word name of the test which describes the nameserver property to be tested.

The test importance indicates the significance of a failure of a given test. Some tests focus on the basic functionality of the nameserver and others on greater details which, if not satisfied, do not actually jeopardise the domain delegation. The importance is represented by a 0 to 10 scale. The lower number the higher the test importance. There are no tests at the 0 level; currently, the highest level used is 6.

The default technical test level is 3.

## 7. Central Registry Communication

The table contains a description, time specification and addresses of individual types of Central Registry communications, including poll messages which are intended for the registrars' needs.

**Table 2: Central Registry Communication**

Type	When	Addressee	Note
Notification	After domain change implementation	Notify the holder's e-mail	
Notification	After contact change implementation	Notify the contact's e-mail	
Notification	After nameserver set change implementation	Notify the technical contacts' e-mail	
Notification	After key set change implementation	Notify the technical contacts' e-mail	

Notification	After registrar change implementation	Notify the respective contact's e-mail	To be received as a poll message by both the original and the new registrar
Sending of domain authorization information	After domain change implementation	Notify the holder's e-mail	
Sending of contact authorization information	After contact change implementation	Notify the contact's e-mail	
Sending of nameserver set authorization information	After nameserver set change implementation	Notify the technical contacts' e-mail	
Sending of key set authorization information	After key set change implementation	Notify the technical contacts' e-mail	
Validation	30 days prior to the expiry of the validation date		To be received as a poll message by the registrar
Validation	15 days prior to the expiry of the validation date	Holder, administrative contacts	
Expiry	30 days prior to the expiry date		To be received as a poll message by the registrar
Expiry	On the expiry date	Holder, administrative contacts	To be received as a poll message also by the registrar
Exclusion from the zone after expiry	30 days of the expiry date	Holder, administrative contacts, technical contacts, nameserver sets	To be received as a poll message also by the registrar
Exclusion from the zone – validation	On the date of validation expiry	Holder, administrative contacts, technical contacts, nameserver sets	To be received as a poll message also by the registrar
Domain name cancellation	45 days after expiry	Holder, administrative contacts, technical contacts, nameserver sets	To be received as a poll message also by the registrar
Domain name cancellation	On the cancellation date		To be received as a poll message by the registrar
Cancellation of an unused contact, nameserver set or key set		Contact or technical contacts	
Technical test results	Upon request		To be received as a poll message by the registrar
Technical test results	Periodical	Technical contacts of a respective nameserver set	To be received as a poll message also by the registrar
Invoices	Monthly	Registrar	Invoice in pdf and xml
Invoices for advance payments received	After matching the advance payment	Registrar	Invoice in pdf and xml

## A. EPP Protocol Schemes

XSD scheme importing all other definition files:  
<http://dsdng.nic.cz/schema/production/all-2.1.xsd>

XSD scheme for the basic EPP protocol commands:

<http://dsdng.nic.cz/schema/production/epp-1.0.xsd>

XSD scheme for the basic EPP protocol data types:

<http://dsdng.nic.cz/schema/production/eppcom-1.0.xsd>

XSD scheme with a contact administration extension:

<http://dsdng.nic.cz/schema/production/contact-1.5.xsd>

XSD scheme with a nameserver administration extension:

<http://dsdng.nic.cz/schema/production/nsset-1.2.xsd>

XSD scheme with a key set administration extension:

<http://dsdng.nic.cz/schema/production/keyset-1.2.xsd>

XSD scheme with a domain administration extension:

<http://dsdng.nic.cz/schema/production/domain-1.4.xsd>

XSD scheme with an enum domain administration extension:

<http://dsdng.nic.cz/schema/production/enumval-1.1.xsd>

XSD scheme with more functions added on top of the EPP standard:

<http://dsdng.nic.cz/schema/production/fred-1.4.xsd>

XSD scheme with common structures on top of eppcom:

<http://dsdng.nic.cz/schema/production/fredcom-1.1.xsd>

## ***B. Description of Individual Functions***

The description of individual EPP functions and the meanings of their parameters as well as the restrictions upon the values thereof are available at <http://dsdng.nic.cz/upload/constr.html>.