

**DSDng - Domain Administration
System for .cz and
0.2.4.e164.arpa Domains
Functionality Specifications**



DSDng - Domain Administration System for .cz and 0.2.4.e164.arpa Domains: Functionality Specifications



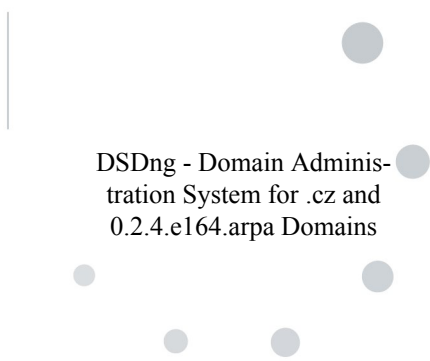
Functionality Specifications DSDng version 2.0

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Chapter 1. System Overview

1.1. Introduction

The purpose of this document is to provide a basic definition of the Domain Name Administration and Registration System (DSDng), prepared to operate several registries at once. Currently, the system is being developed for administration of the .cz and ENUM domains, but its design and architecture will allow it to be expanded by additional registers and/or to be used for administration of other registers.

The system is designed as an open under GPL 2.1 license.

The goals of the system are as follows:

- decentralised solution, enabling access for individual registrars (partners)
- central registry providing authoritative information on domain ownership and owners
- equal access of all registrars to resources and information in the central registry
- pre-defined interface for communication between registrars and the central registry
- stable and highly available DNS service

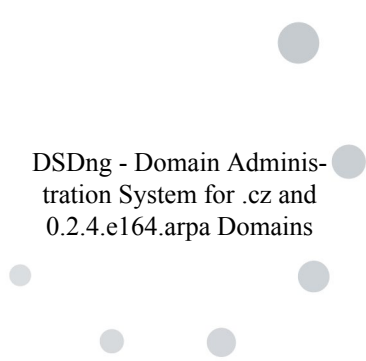
This document is accompanied by a Technical Solution document, containing detailed description of functions and methods described here.

1.2. General features

The basic function of the system is to administer the .cz and 0.2.4.e164.arpa (ENUM) domains. The system will be a register (Tier1 for .e164.arpa) of sub domains for both these domains, from which the content at DNS servers will be generated. The register will be used by individual registrars (to whom it will provide an interface enabling operations concerning individual sub domains), CZ.NIC administrators (to whom it will provide a means of monitoring and editing of register information) and any other users (to whom it will display public information about domain holders).

The register will have the following features:

- Support of multiple zones, any level
- All system parameters settable and editable
- All operations logged, roll-back possible



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- IPv6 support for communication with external systems and internal subsystems
- All systems redundant (HW and SW level)
- High availability of the entire system
- Entry points protected against overload/DoS
- Software source code published under free/open-source license

1.3. System Architecture

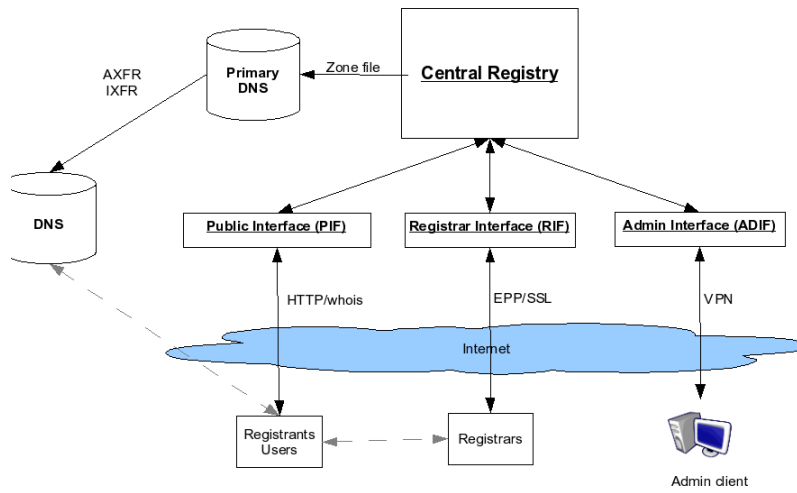
The system consists of several subsystems ensuring its individual functions:

1. The Central Registry (CR) - CR accepts requests for operations concerning domains in the register, processes them in the database and sends back their results. It also implements regular checks of register information (domain expiration, technical checks of domain data, etc.) and prompts relevant actions based on results of these checks (information to domain contacts, withdrawal of domain from a zone, etc.).
2. The Registrar Interface (RIF) - The RIF is the interface between a registrar and the central registry. The registrar uses the EPP protocol to communicate with RIF over a secure link. The RIF accepts a registrar request, sends it to the CR and then sends the reply from CR back to the registrar.
3. The Client Application - Client Application will be a tool for registrars to provide all functions required for their operation.
4. The System Administrator Interface (ADIF) - System Administration Interface is an application used by system administrators (domain administrators' employees) to set system parameters, obtain domain content information (current domain holders and contacts, domain history, register statistics, etc.) and manually edit register information.
5. The Public Interface (PIF) - Public Interface is used to obtain public information from the register - WHOIS service. WHOIS will be available both as a web application and a Unix service.
6. The DNS subsystem - Primary and secondary name servers providing current zone file content via DNS.

Relations between individual subsystems and links to other systems are shown in the following diagram.

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Figure 1.1. System Architecture



Chapter 2. The Central Registry (CR)

The Central Registry is a key subsystem which administers the domain information database. The CR provides access to this information to other subsystems.

2.1. Registry Objects

Basic objects will include:

Zone

A Zone is the highest point in the hierarchy structure and contains individual domains. The CR contains one or more zones, zones are always handled by system administrator. Individual parameters for each zone may be specified.

Domain Name

Domain Name (Domain) is part of exactly one zone. Each domain name has one holder, zero to "n" administrative contacts and none or one set of name servers. The system will include rules defining which domains may and may not be registered.

Contact

A Contact contains information on physical or legal entities holding a domain, as well as administrative and technical contacts. Information provided for each contact must uniquely identify the given entity. The system will contain limitations for identifiers of individual contacts.

Name server set

A Name server Set combines two to ten name servers and one to "n" technical contacts. The system will contain limitations for identifiers of individual name server sets.

Name server

A Name server is a FQDN name of the relevant name server. When the name server name is within a domain it specifies (for example ns.nic.cz -> nic.cz), it must contain a GLUE record. IPv4 and IPv6 addresses will be supported for GLUE records.

Registrar

A Registrar is a subject authorised to access (in a pre-defined way) the Central Registry and enter requests for changes of information in the Central Registry. Central Registry information changes may only be implemented through Registrars.

Attributes of individual objects and/or other auxiliary objects will be based on the definition of the EPP protocol in keeping with relevant RFC.

2.2. Overview of Registrar Operations over CR Objects

Operations concerning domain information within the CR will be divided into two groups - operations implemented by any registrar and operators implemented by sponsoring registrar. Sponsoring registrar is a registrar assigned by the object holder to administer that object's information.

Any registrar will be able to perform following operations (generally-speaking operations reading CR information and registering new information):

- Reading of domain, contact and name server set information, etc.
- Registration of new domain (for 1 to 10 years in integral numbers)
- Contact registration
- Nameserver set registration
- Request for change of an object's sponsoring registrar (will require authentication code)

Only the sponsoring registrar will be able to perform the following operations (generally-speaking, operations that change existing CR information):

- Renewal a domain registration (by any period of time up to 10 years, in integral numbers)
- Change in domain information
- Change in contact information
- Change in nameserver set information
- Deletion of a registered domain
- Deletion of a contact (the contact's ID will be in quarantine for a set time and will not be available for use with a new contact)
- Deletion of a nameserver set
- Obtaining of the authorisation code to change the sponsoring registrar

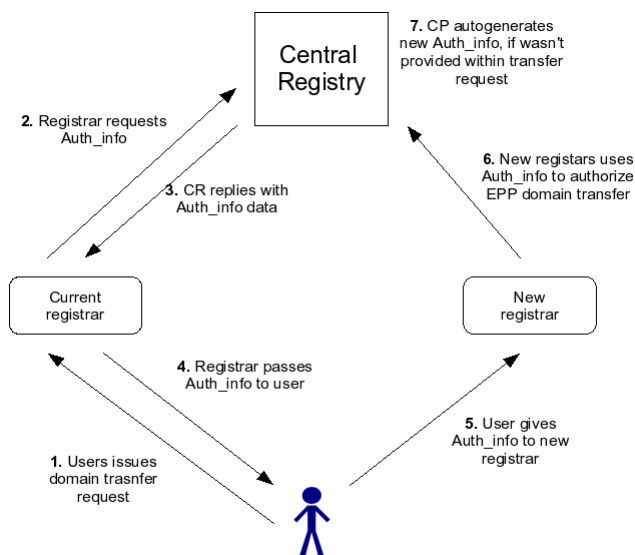
The Registrar Interface will also provide the following auxiliary functions to registrars (which do not concern particular domains):

- Change of a registrar's password
- Displaying of the current balance of the "account"
- Forwarding of CR information on domains (for example notification of a forthcoming expiration, notification of withdrawal of domain from a zone, etc.)
- Reading of lists of domains for which the registrar is a sponsoring registrar
- Reading of lists of name servers for which the registrar is a sponsoring registrar
- Reading of lists of contacts for which the registrar is a sponsoring registrar

2.2.1. Change of Sponsoring Registrar

Change of sponsoring registrar is based on the EPP RFC model. The domain holder requests the current sponsoring registrar of an information (domain, contact, name server set) to issue a one-time authorisation code. This code is given to the new sponsoring registrar. The new sponsoring registrar uses the code to perform the operation shown in the following diagram.

Figure 2.1. Change of Sponsoring Registrar



After each operation (creation or change of information), a new authorisation code is generated.

2.3. Central Registry Functionality

2.3.1. Zone File Generation

Information saved in the CR will regularly be used to generate a file containing the content of each zone processed by the CR. This zone file will then be distributed to primary name servers of the individual zones and from there to secondary name servers.

A domain will be included in the relevant zone file only when:

1. It has a name server set
2. Its validation is valid (for ENUM domains)
3. Is not expired or expired but within the protection period

The Central Registry will check domains once a day for expiration or validation (for ENUM domains) dates. When either of these dates is one month away, the CR sends a notification (EPP message) to the domain's sponsoring registrar and by Email to the domain holder and administrative contacts. The text of this Email will be defined in a template.

2.3.2. Notification of Forthcoming Expiration/Validation Dates

The Central Registry will check domains once a day for expiration or validation (for ENUM domains) dates. When either of these dates is one month away, the CR sends a notification (EPP message) to the domain's sponsoring registrar and by Email to the domain holder and administrative contacts. The text of this Email will be defined in a template.

2.3.3. Protection Period following Expiration

Expired domains are under a 45 days protection period. During the first 30 days, the domain "works" as if it was active and in the remaining 15 days, it is not included in the zone file of the given zone. During the protection period, the sponsoring registrar may prolong the domain's registration. Such extension is calculated from the original expiration date. During the protection period, all other operations concerning the domain are possible, but have no impact on the length of the protection period. When the domain is not renewed during the protection period, it is deleted from the CR on the day following the end of the protection period.

Expiration of a domain at the beginning of the protection period, its withdrawal from the zone after 30 days and deletion of a domain from the CR is notified to the sponsoring registrar using an EPP message and to the holder, administrative and technical contacts of the domain using email. The text of all those Email messages will be defined in a template.

2.3.4. Invoicing

Invoices issued by the system will be available as .pdf files (for printing and sending to registrars) and as XML files. The layout and content of both the pdf and XML documents will be defined using a template. All invoices will be sent by Email (as both pdf and XML files) to the Email address of the relevant registrar. All invoices issued will be archived.

Together with issue of an invoice, batch processing and transfer of relevant accounting data for book-keeping purposes will be provided.

The system will issue two types of invoices:

- Monthly invoices for services provided
- Invoices for advance payments received

2.3.4.1. Monthly Invoices

Monthly invoices will be issued on the first day of the month and sent to all active registrars.

Information for monthly invoicing will be obtained from several sources:

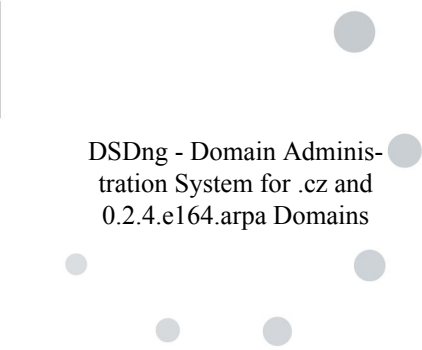
- from the price list - prices of individual items (editable and configurable in the price list)
- from the CR - data on operations with domains (numbers and details on registration of new domains and extension of registration of existing domains)
- from manual input items (the system enables the operator to manually insert an item into the next invoice)
- from the bank - data on payments received

The monthly invoice shall contain the following items, together with amounts and overall price:

- Down payments used during the month
- Registrations of domains performed
- Extensions of registrations performed
- Contractual fines

Together with the invoice, a detailed breakdown of individual items/amounts will be prepared. Each item will contain the following details:

- detailed description of item (for example "Registration of blabla.cz")



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- time of execution (timestamp in ISO format)
- price
- for list of registered and extended domains, date of expiration of each domain

2.3.4.2. Invoicing Advance Payments Received

Invoices for advance payments received will be issued on the first working day following receipt of advance payment. These invoices will contain the amount received, date of receipt, variable symbol and VAT details.

2.3.5. Processing of Payments

The Central Registry will contain a module enabling it to communicate with the bank. This module will process incoming credit payments from registrars. The system will support communication with accounts in several banks. It will also support manual input, which will be used when communication with the bank is down. On-line processing of bank messages will be preferred and payments processing must contain control mechanisms to prevent duplicate crediting and/or missing of a payment.

After an advance payment is received from the registrar, the following will occur:

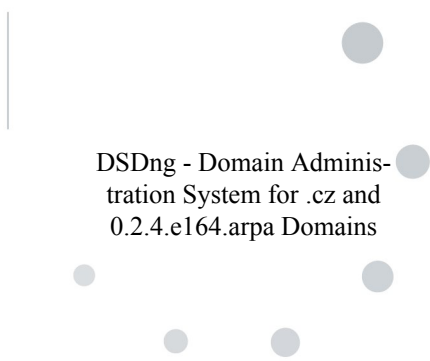
- it will be linked to that registrar
- VAT calculations will be performed
- advance payment invoice will be issued
- the amount (before VAT) will be credited to the registrar's credit account

2.3.6. Technical Checks

The central registry will check the technical condition of name servers listed in name server sets where domain names are delegated. As part of these technical checks, each name server listed in a name server set will be checked for concrete domain names.

The technical checks will be implemented as follows:

1. following each change in name server set assigned to the domain name
2. regularly once a month (the interval will be configurable)
3. following a request from a registrar through the registrar interface. The registrar will also be able to check name server sets not assigned to their domain name (for example to test before changing a name server set)



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The result of technical checks implemented after changes and at regular intervals will always be sent to contact Emails listed in name server sets. The text of this Email will be defined in a template. For checks requested by registrars through the registrar interface, the results will also be sent to these addresses.

2.3.7. Removal of Inactive Records

The central registry will automatically remove information (contacts and name server sets), which are not assigned to any domain name for a period of 6 months (configurable). When such information is removed, the relevant contact will be informed by Email. This Email will be defined in a template. The same message will be sent to the sponsoring registrar using EPP.

The removed ID's will be kept in quarantine for a defined period of time and will not be available for registration..

Chapter 3. Registrar Interface (RIF)

The registrar interface enables the registrars to access the central registry and the object information and provides them with tools to implement operations concerning objects within the CR. The registrars will use RIF to send requests for operations concerning objects to the CR and will receive replies from the CR through it.

The RIF will provide the following:

- communication with registrars using the EPP protocol and secure connection
- support for all operations concerning domains provided by the CR
- support for automatic request processing
- connection of several registrars at the same time
- individual account with specific access rights for each registrar
- logging of all communication with registrars. Each request will be assigned an unique number for archival, the content of log information will be configurable
- support for non-displaying of certain information about ENUM domain holders

The RIF will also include a developer's toolkit (as a library) to facilitate implementation of clients. This toolkit will be used to develop a sample client used for operations by CZ.NIC and available for other registrars including source code. The sample client will include all functions required for any registrar's communication and operation.

Chapter 4. System Administrator Interface (ADIF)

The system administrator interface will provide administrator with tools for displaying and handling of any information in the registry and tools for manual system maintenance.

Access rights for individual users of the ADIF will be divided into three groups:

1. Super users - access to all ADIF functions.
2. Authorised Users - access to all ADIF functions with the exception of user administration functions (add new user, set access rights, etc.) and functions used for the registry's global parameters settings.
3. Regular Users - read-only access to all functions and manual inclusion of a domain into a zone.

All operations of every ADIF user will be logged and the system will enable display of cumulative and detailed stats for individual users, time periods and operation types.

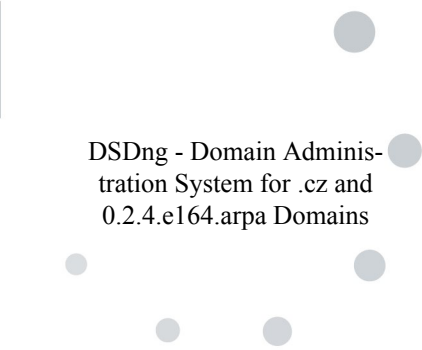
The basic function of the ADIF is to search for individual items (domains, contacts, name servers, etc.), detailed display of their attributes and their manual editing.

The search utility will enable the following:

- entry of any attribute of the item as search criteria, plus the searched value (for known values, it will display a pull-down list)
- search using unlimited number of criteria linked by logical AND, OR and AND NOT operators
- set the type of attribute to be displayed in the result for each search, default setting for each object will be defined and editable in system configuration
- sort the results (ascending/descending) for any displayed attribute (column), including multiple-layer sorting
- limit the number of results displayed, concrete value for each type of search specified in global system settings
- export search results into a CSV or Open Document file

Display and manual editing of results will enable the following:

- display of historical values for each attribute, including indication of period of validation



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- roll-back to any historical status of all domain, contact, name server set and name server attributes
- visually highlight attributes altered by the user
- select a set of data in the CR by entering search criteria and implement global changes on them. For example a global change of registrar.

4.1. Central Registry Search

The system will enable browsing, search and detailed display of the central registry content.

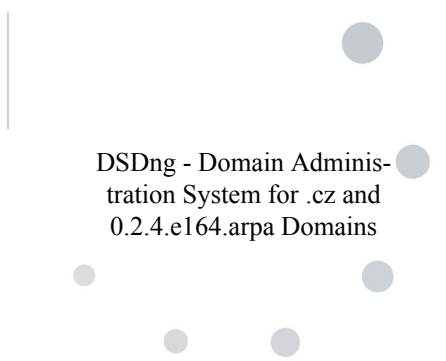
4.1.1. Domain Information

Domains may be searched using the following criteria:

1. domain name or telephone number (most specific, least specific)
2. sponsoring registrar
3. registration date (range)
4. update date (range)
5. expiration date (range)
6. withdrawal date (range)
7. cancellation date (range)
8. holder
9. administrative contact
10. technical contact
11. contact in any role
12. name server set or particular name server address
13. status
14. domains on which manual operations were performed

The following data may be displayed as search results:

1. name, id and roid



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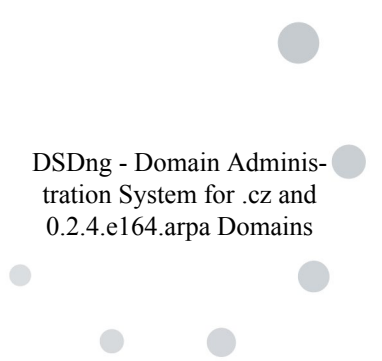
2. status
3. name servers including IP addresses
4. holder
5. sponsoring registrar
6. registrar and date of registration
7. registrar and date of update
8. administrative and technical contacts
9. date of expiration, withdrawal from zone and cancellation
10. requests concerning domain

4.1.2. Contacts may be searched using the following criteria:

Contacts may be searched using the following criteria:

1. contact handle
2. sponsoring registrar
3. name of contact
4. contact organisation
5. VAT ID/DIC
6. email
7. SSN
8. registration date (range)
9. update date (range)
10. expiration date (range)
11. type of contact (holder, admin, tech)

The following data may be displayed as search results:



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1. handle, id a roid
2. address
3. contact information
4. VAT/DIČ
5. SSN
6. date of registration and name of registrar who performed it
7. date of update and name of registrar who performed it
8. requests concerning contact
9. domains where the contact is used
10. name server sets assigned to contact

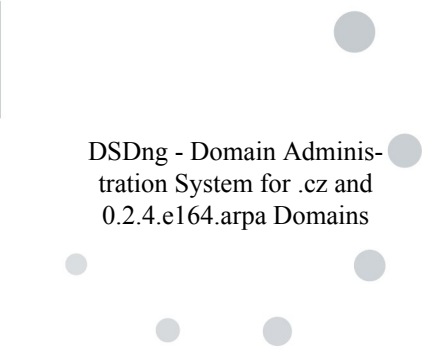
4.1.3. Name server Information

Name servers may be searched using the following criteria:

1. name
2. IP address
3. Nameserver set

The following data may be displayed as search results:

1. name
2. IP address
3. Nameserver set
4. number of domains to which name server sets are assigned, with optional display
5. sponsoring registrar
6. date of registration and name of registrar who performed it
7. date of update and name of registrar who performed it
8. requests concerning name server



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4.1.4. Received Request Information

Requests may be searched using the following criteria:

1. request number
2. name of registrar sending it
3. object of request
4. date (interval) of request

The following data may be displayed as search results:

1. request number
2. request result (status + description)
3. request content
4. name of registrar sending it
5. request object and display option
6. date and time of request

4.2. Technical Checks execution

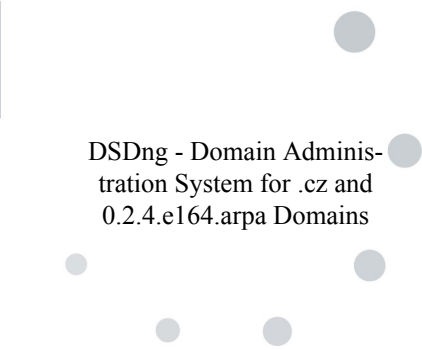
The system will enable users to manually call a technical check of any domain. The result will be sent to the user's email address entered at the beginning of check.

The system will also enable browsing and search of technical check results (manually and automatically prompted) using the following criteria:

1. domain on which the check was executed
2. contact listed for the domain in a specified role
3. name server checked
4. check date

The following data may be displayed as search results:

1. domain
2. method of check invokement



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3. test result

4.3. Registrar Administration

Registrar administration will make it possible to add or delete a registrar and change parameters of registrars with access to the central registry.

The system will offer following functions:

- add a new registrar
- delete an existing registrar
- display detailed information on registrar and edit it - including SSL key administration
- block a registrar for a period of time

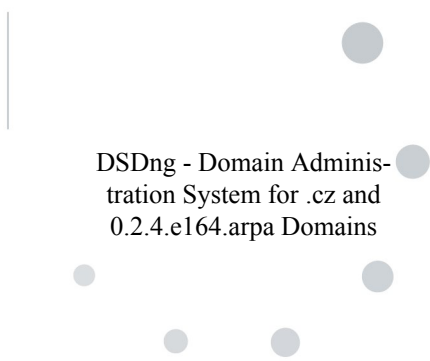
Detailed display of attributes will contain the following registrar data:

1. Basic information, (name, registered address, etc.)
2. Client SSL Certificates
3. Request logs
4. Operations log
5. Current credit balance
6. Detailed credit movement over a period of time
7. Accumulated credit movement over a period of time
8. Display of invoices issued

4.4. Manual domain administration

Apart from regular alterations of domain attributes, the system will enable the following manual operations:

- withdrawal of domain from a zone
- assigning a domain into a zone
- blocking of domain, which will disable any operation with it. The blocking procedure will include interruption of the invoice cycle for the domain.



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- division of a domain for a block of telephone numbers into the smallest number of sub-blocks. These sub-blocks will be registered as new domains with the same contacts, registrar and name server sets as the original domain. One of these new domains, the system will enable to specify which one, will have the same expiration date as the original domain. The other new domains' expiration date will be 1 month after the division. The assigned registrar will be informed about the new domains.

4.5. Virtual Registrar

The system will include a virtual domain registrar, which will have all the functions of a normal registrar and the following functions:

- administrative registration of a domain
- cancellation of any domain for administrative reasons
- blocking/unblocking of any domain
- free extension of registration for assigned domains

4.6. Statistics

The ADIF will offer its user the following statistics, including a possibility to specify historic data (for a specific period):

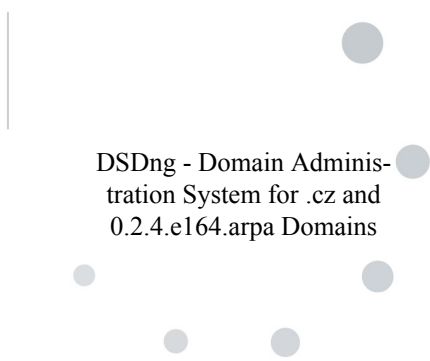
1. number of domains, contacts, name servers in the CR
2. number of queries via whois for individual domains and accumulated
3. number of successful and unsuccessful EPP calls for individual registrars and accumulated
4. DNS server stats (number of queries)

4.7. Invoicing Data

The administrative centre will generate information for invoicing to individual registrars. The total amount spent by the registrar since last invoice and a list of CREATE and RENEW operations for which money was taken from the registrar's credit will be generated. Output will be provided in a file suitable for processing in the accounting and invoicing system.

Note

Invoicing of a contractual penalty in the amount of unused credit for a contractual period will also be possible at the end of invoicing period.



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4.8. Manual Zone Generation

For each individual zone or for all zones in the CR, the system will offer a possibility to manually start generation of zone file and its distribution to the name servers.

Chapter 5. Public Interface (PIF)

The public interface will be used to obtain public information from the registry via WHOIS and statistical data. Another functionality of the interface is to provide transfer authentication code to users directly and without involvement of the assigned registrar.

WHOIS will be available both as a web application and a Unix service. The service will display only a pre-defined set of information from the CR. Displayed content can be defined for each zone and each type of access (via web or Unix whois) separately. In both modes of information display, the "disclaimer" will be displayed.

The WHOIS (both web and UNIX) will not include history search (for domains or contacts) and sophisticated searches (type of domain for a particular contact, etc.), not even in the UNIX whois standard form.

The stats will be displayed on the web page, displays will be changeable using various criteria. Download of data in CSV or similar format will be available for further processing.

5.1. WHOIS

5.1.1. Web WHOIS

The Web WHOIS will:

- display links for items for which additional information can be displayed, for example for contacts
- display list of registrars (with links to their registration websites) for free domains
- include protection against machine extraction of data from the CR
- be integrated into an external content management system (ie. on www.nic.cz)
- produce a code, which will be accessible [<http://www.dobryweb.cz/metody/pristupnost.html>] and usable [<http://www.dobryweb.cz/metody/pouzitelnost.html>]
- provide the maximum amount of information from the CR (including telephone numbers, emails, etc.). For the ENUM domains, it will only provide the following: is domain registered?, domain registrar and its details, name servers, domain status, domain time information and technical contact information
- support text display in several languages

The web WHOIS will consist of a simple form for input of domain name and a button to send a query. The input will be controlled and will return error if the input chain is not a domain name or telephone number (for ENUM).

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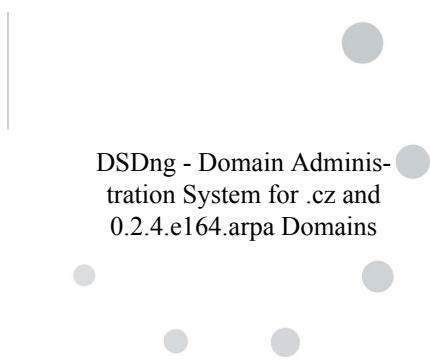
When the chain is a domain name in another domain than that serviced by the CR, a page with links to lists of domain delegations at IANA.org will be displayed, together with instructions on how to find the correct WHOIS for the domain. When the user enters www.domain and/or a domain with a higher level name, a notification will appear and a result of domain search will be displayed.

Telephone numbers entered for search will be supported in both national and international format, that is 222333444, 420222333444, 0042022233444 and +420222333444. When the user enters a number not serviced by the CR, a page with link to list of ENUM delegations will be displayed.

The result of a WHOIS search will be a page with individual details displayed in a table (empty items will not be displayed). The information will be grouped (contacts, name servers, etc.). See the following figure.

Figure 5.1. Domain Information Display - web

Prohlížení doménového jména		
Aktuální registrace		
Jméno domény	nic.cz	
Popis doménového jména	CZ.NIC, Prague	
DNS servery	a.ns.nic.cz 217.31.204.2, c.ns.cznic.org	
Způsob upozornění na změny	Oznámení změn	
E-mail pro oznámení	tm@nic.cz	
Stav doménového jména	Doména zaplácena a je v zóně CZ	
Registrace od	30.10.1997	
Expirace	15.03.2007	
Držitel	Identifikátor	Od
CZ.NIC, z.s.p.o.	CZ-NIC	23.01.2001
Technický správce	Identifikátor	Od
CZ.NIC, z.s.p.o.	CZ-NIC	12.03.2004
Registrátor	Identifikátor	Od
CZ.NIC, z.s.p.o.	REG-LRR	12.03.2004
Souhlas s pravidly registrace	Verze	Od
Ondrej Filip	20060101	22.02.2006



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5.1.2. Unix WHOIS

The UNIX whois will:

- enable display of the following information only: whether domain is registered, domain registrar and their details, name servers, domain status and time information about domain.
- enable provision of on-line information on domain names (all registered, that is including domains not included in the zone), contacts, and name servers in the central registry
- support full domain names only (not wildcards)
- display texts in English only
- limit number of accesses from a unique address per minute and block connections which exceed the limit

The text output will contain US ASCII code characters only and will contain the following sections in this order:

1. Copyright and version of whois server, and/or additional information (for example a link to project website).
2. Information on database administrator (cz.nic), explanation of limited information and a link to web whois interface with complete information.
3. Conditions for the use of database information.
4. Time of obtaining of the information from the CR.
5. Information concerning the domain.

See the following figure as example.

Figure 5.2. Domain Information Display - Unix whois

```
(charon).Charon ~# whois nic.cz
% This whois looks up records in off-line generated
% database maintained by the CZ.NIC. Results needn't
% contain all available information, see also on-line full
% information search service at the web-site http://www.nic.cz/
%
% Rights restricted by copyright.
% See http://www.nic.cz/en/copyright.php
% WHOISD server version: 2.2.3 build: Oct 14 2005 11:45:00
% Server id: #whois-1/s
% Timestamp: 08.09.2006 (dd.mm.yyyy) 09:07 (hh:mm) CEST

domain:      nic.cz
descr:       CZ.NIC, Prague
admin-c:     CZ-NIC
tech-c:      CZ-NIC
reg-c:       REG-LRR
nserver:     a.ns.nic.cz c.ns.cznic.org
glue:        a.ns.nic.cz 217.31.204.2
created:     19971030
changed:     20060629
expire:      20070315

role:        CZ.NIC, z.s.p.o.
address:     Amerika 23
address:     Praha 2
address:     120 00
address:     The Czech Republic
admin-c:     TM-NIC
admin-c:     MAPET
admin-c:     FEELA
tech-c:      TM-NIC
tech-c:      MAPET
tech-c:      FEELA
```

5.2. Statistics

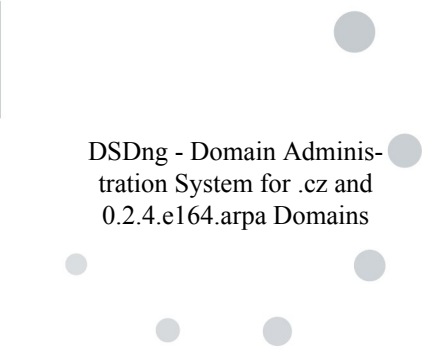
The system will provide the following statistics:

Note

The system will export statistics in open formats, which may be imported into usual spreadsheet applications (CSV, Open Document).

For .cz domains, statistics from the old version of the system will have to be migrated to ensure data continuity.

- number of domains registered + decrease/increase
- number of domains generated into the zone + decrease/increase
- number of domain holders + decrease/increase
- number of domains per registrar
- number of contacts
- number of changes in domains (registration, renewal, change of information, change of registrar, cancellation)



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- results of technical checks

Displays of statistics will have the following properties:

- will enable selection of time period
- will include chart and table
- the user will be able to sort the displayed information by individual criteria (period, number, registrar, etc.)

5.3. AuthInfo Provision

The system will provide AuthInfo password for authorisation of transfer of registry objects by users directly without the assigned registrar taking part (for example when the registrar does not react to holder's requests, etc.)

To obtain AuthInfo, the user fills and sends a form with the following fields (all fields mandatory):

- name of object for which AuthInfo is provided
- reason why user requests AuthInfo (pre-defined options plus a fill in one)
- method of delivering AuthInfo

The form will be protected using a CAPTCHA image with a very long text (10+ characters). The form content will be processed depending on individual types of AuthInfo provision:

By sending a password to an address within the CR

By sending a password to an Email address listed in the CR for the relevant object - domain holder (domain), contact (contact) and technical contact (name server set)

By sending a password to an Email address signed with electronic signature

By displaying a text of an Email message which the user will copy into the Email client and electronically sign. Instructions on how and where to send the Email will be displayed. Based on this Email, the AuthInfo will be retrieved manually and sent back as a reply.

By handing-over AuthInfo based on notarised signature

By generating a PDF document with all CR information for the relevant object pre-entered. The user takes this document to a notary public and signs it. The AuthInfo will be retrieved manually based on this document.