

NIC Côte D'ivoire

- Overview of .ci open source Registry System

CODEV-NIC

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Vp Capacity Building (AFTLD)

NIC Côte D'Ivoire

- NIC.CI is a non lucrative association, responsible for the management of the .ci ccTLD

A register with an operational responsibility (support users, invoicing, marketing, technique, etc). It has the duty to serve the community.

- The objective of nic.ci
 - - Become the .CI domain administrative contact as well as technical contact
 - - Administer the .CI ccTLD and its Second Level Domains
 - - Maintain and promote the operational stability and utility of the .ci ccTLD
- To ensure its tasks, the register needs technical infrastructure. For example an interface to update data, a zone generator to produce data which will be published in The DNS. A Whois server which allows public to have information about domain name)

CODEV-NIC: Introduction (1)

- The Network Information Center of côte d'Ivoire uses CODEV-NIC to manage its activities.
- This includes:
 - domains approval
 - domains management

CODEV-NIC: Introduction (2)

- The software is very flexible.
- Features are chosen in a configuration file
- Here are some features of NIC-CI:
 - registrars management
 - expiration of domains
 - several technical contacts
 - no synchronous domains creation

CODEV-NIC: Components

- CODEV-NIC has many components including:
 - an xmlrpc server
 - a whois server
 - a web interface for domains' management
 - a tracking system to manage asynchronous domains creation or domains transfer
 - a zone generator
 - a migration tool to import data from a zone file
 - a zone check utility
 - a reminder for domains expiration
 - an utility to disable expired domains

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The Target

The small or medium DNS registry for a TLD
(Top-Level Domain)

Managing a TLD is possible even in a small country, with few resources. A lot of value for a small investment.

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A registry is . . .

- ❑ A database,
- ❑ Tools to update and query it, from the registry and from outside,
- ❑ A few applications like the whois server, a DNS zone le generator. . .

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The state of ccTLD

Many ccTLD in the world are a in very poor state :

1. No real Information System,
2. Often, no written registration rules and procedures,
3. No whois server,
4. No real database (Excel spreadsheet, paper), registration often manual
5. Only a few dozens of registrations,
6. Expensive,
7. Name servers not fully operational.

CODEV-NIC tries to address #1, #3 and #4 and may be indirectly #5 and #6.

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No fatality

A ccTLD is manageable with low-tech systems

Small machines and simple software

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Set of requirements

1. Multi-policy,
2. Free software,
3. Easily managed from the registry or from outside (registrars, public),
4. Entirely automatic,
5. Co-developed (no outsourcing, real co-development)

Mostly for small and medium registries (com was not a target).

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Multi-policy

Our most important requirement.

Every TLD has a different registration policy. Our vision is not one of uniformity. We want to be multi-policy.

Examples of differences :

- Direct selling vs. registry/registrar. If registrars, are they the only authority (for instance with contacts) or not ?
- IDN or not,
- Synchronous registration or not (papers required),
- Automatic expiration or explicit deletion ?

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Existing software

❑ OpenReg, ISC <http://www.isc.org/index.pl?/sw/openreg/>

Very good software but :

- Only one registration policy (basically the one of org),
- No interface for the registry staff or for the ordinary user (you have to develop it as an EPP client or as a message bus component),
- The only interface for the registrars is EPP, which I regard as completely unrealistic for most countries.

❑ SRS-NZ <http://sourceforge.net/projects/dnrs/>

- Only one registration policy
- Not maintained for general use
- **registro.br : non free**

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The project

Four teams (three actually) in different countries. This is co-development : the best way to be sure the software is suitable for the users.

- NIC-CI (Ivory Coast)
- NIC-MG (Madagascar)
- AFNIC (France), manager.

Most of the money came from the French government.

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The process

First, a one-month workshop (Feb. 2005) to discuss, prototype, brainstorm.

Participants came from seven NIC : Haiti, Algeria, Ivory Coast, Gabon, Madagascar, Mauritania, France.

Then, development, with various groupware tools (Subversion, Request Tracker, mailing lists, IRC session).

Poor Internet connectivity was a big problem in Madagascar.

The Ivory Coast developers worked during a civil war.

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Technical choices

- Python programming language : simplicity and readability,
- DBMS PostgreSQL : triggers, integrity constraints, stored procedures,
- Cheetah templating system (not only for the Web site but also for making the system multi-policy),
- Apache, mod_python and Vampire for the Web site.
- Docbook and Python's reST for the documentation.

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The configuration file

Technical and policy choices are there.

Most parameters are static : you cannot change them afterwards.

`tld=example`

`idn = false`

`have_registrars= true`

`registrar_manages_contacts = true`

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The database

- Ambition : to be the unique reference for the TLD (no state in the zone le, for instance),
- Integrity constraints, as far as SQL goes (triggers and stored procedures),
- Not really portable (impossible with SQL),
- Use of Cheetah templates to implement multi-policy.

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The library

Every access to the database (except read-only accesses) goes through the library.

One Python class per type of object : Domains, Contacts, Nameservers. . .

Hooks for the local customization.

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The XML-RPC server

The only external interface is a XML-RPC server (an email interface is planned).

People outside of the registry (registrars, authorized users) can read and write in the database.

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Asynchronous operations

For instance, transfers between registrars.

CODEV-NIC relies on an existing tool : Request Tracker.

That way, we do not have to reinvent the wheel.
Request Tracker is easily interfactable, thanks to scripts.

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Deployment

Operational today in Ivory Coast (starting in February 2006).

IN senegal-2008 (IFN help usp to delpoy codev-nic in Sénégal)

In Madagascar may be this year.

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Current state

- Not enough deployments to be too assertive,
- Installation and deployment still very rough (no tarball, no configure script),
- Some pieces are missing like IDN support.

But it is free software, you are welcome to help.

CODEV-NIC: The web interface (1)

Domain registration Center

You are logged in as *nic*.

[Home](#) | [Logout](#)

[Domains](#) | [Contacts](#) | [Hosts](#) | [Registrars](#) | [Words](#)

Welcome on CODEVNIC management center.
Please read README file to know more about the development of this module.

webmaster@generic-nic.net

The web interface is used to manage domains, contacts, hosts(nameservers), registrars and forbidden words.

CODEV-NIC: The web interface (2)

Domain registration Center

You are logged in as *nic*.

[Home](#) | [Logout](#)

[Domains](#) | [Contacts](#) | [Hosts](#) | [Registrars](#) | [Words](#)

[create](#) [change_contacts](#) [change_nameservers](#) [delete](#) [query](#) [change_status](#) [expiration_delay](#)

STEP 1: Before registering your domain name, you have to check if it's available.

If you want to create your domain with only new contacts, choose CREATE WITH NEW CONTACTS.

Else, if you want to create it with both existing and new contacts, you have to create first the new contacts, and then choose option CREATE WITH EXISTING CONTACTS.

Check your domain availability now:

Your domain name (***yourdomain.ci***) is available:

[CREATE YOUR DOMAIN NAME WITH NEW CONTACTS.](#)

[CREATE YOUR DOMAIN NAME WITH EXISTING CONTACTS.](#)

Domains can be created using existing contacts or created with new contacts.

CODEV-NIC: The web interface (3)

manage domain

You are logged in as *nic*.

[Home](#) | [Logout](#)

[Domains](#) | [Contacts](#) | [Hosts](#) | [Registrars](#) | [Words](#)

[create](#) [change_contacts](#) [change_nameservers](#) [delete](#) [query](#) [change_status](#) [expiration_delay](#)

Delay a domain name expiration date:

Domain name

Days number to delay

Default time = 366

For registries that enable expiration date feature, domains can be created with custom expiration date or the expiration date may be computed from the lifetime defined in the configuration file. It's also possible to delay the expiration date of a domain.

CODEV-NIC: The web interface (4)

You are logged in as *nic*.

[Home](#) | [Logout](#)
[Domains](#) | [Contacts](#) | [Hosts](#) | [Registrars](#) | [Words](#)

[create](#) [change_contacts](#) [change_nameservers](#) [delete](#) [query](#) [change_status](#) [expiration_delay](#)

Change domain contact:

Domain name*:	<input type="text"/>	<input type="text"/>
Administrative contact:	<input type="text"/>	<input type="text"/>
Holder contact:	<input type="text"/>	<input type="text"/>
Technical contacts:	<input type="text"/>	

Contacts may be easily changed after the domain's creation.

CODEV-NIC: The web interface (5)

Change the nameservers

You are logged in as *nic*.

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[Domains](#) | [Contacts](#) | [Hosts](#) | [Registrars](#) | [Words](#)

[create](#) | [change_contacts](#) | [change_nameservers](#) | [delete](#) | [query](#) | [change_status](#) | [expiration_delay](#)

Step 2: Give the servers list in the text area, one per line.

```
ns.nic.ci  
ns1.nic.ci
```

Add nameservers

Name servers may be easily changed after the domain's creation.

CODEV-NIC: The web interface (6)

Request for a domain's transfer

You are logged in as *nic*.

[Home](#) | [Logout](#)

[Domains](#) | [Contacts](#) | [Hosts](#) | [Registrars](#) | [Words](#)

[create](#) [update](#) [delete](#) [domains list](#) [query](#) [Change a password](#) [Ask a domain transfer](#)
[admin_contact](#) [bill_contact](#) [techs_contact](#)

Enter the domain name to transfer:

Domain name

In registry-registrar-registrant model, registrars use the web interface to ask a domain transfer.

A ticket is generated in the tracking system to manage the transfer.

Once the ticket is closed, the domain is automatically transferred to the new registrar

CODEV-NIC: The web interface (7)

Change a domain Status

You are logged in as *nic*.

[Home](#) | [Logout](#)

[Domains](#) | [Contacts](#) | [Hosts](#) | [Registrars](#) | [Words](#)

[create](#) [change_contacts](#) [change_nameservers](#) [delete](#) [query](#) [change_status](#) [expiration_delay](#)

Change Domain status:

A domain may be disabled by hand for whatever reason.
At the next zone file generation, it won't be published in the DNS.

CODEV-NIC: The zone generator

- The zone generator is intended to be launched periodically.
- It retrieves active domains from the database and writes a new zone file.
- The current zone file is saved before it is overwritten by the new one.
- The new file is loaded by the DNS server.

CODEV-NIC: Information (Whois)

- Domains/contacts search may be performed:
 - by querying the whois server
 - by using the web interface

- Here is a sample output:

```
raph@codev:~$ whois -h 127.0.0.1 nic.ci  
All rights reserved.  
Copyright "Generic NIC".
```

```
Domain: nic.ci  
Created: 2006-01-27 11:14:53.24  
Registrar: nic  
Expiration date: 2007-01-28 11:14:53.24  
Owner's handle: SO1-NICCI  
Administrative Contact's handle: SO1-NICCI  
Technical Contact's handle: SO1-NICCI
```

```
Nameserver: ns.nic.ci  
Address of ns.nic.ci: 213.136.100.81  
Nameserver: ns1.nic.ci  
Address of ns1.nic.ci: 213.136.106.214
```