
Comprehensive Erlang Archive Network

Stockholm, November 9, 2006



What is CEAN ?

- **An Erlang distribution and packaging system**

 - a package has a description file, and an archive file available on internet

 - a package can contain an Erlang application, an OTP Library, any user contribution code

- **Provides easy Erlang installation without compilation**

 - Basic install is a 3Mb self extractable archive for Linux, MacOS X, SunOS, BSD, Windows.

- **Allows to install/uninstall/upgrade Erlang packages**

 - no need to browse the internet, this is done using erlang shell

- **Allows to create custom Erlang/OTP installation on production systems**

 - one can deploy the basic CEAN Erlang bootstrap and start a distribution profile script

- **Aims to be a centrale place to find erlang code**

 - CEAN can use tar, zip, cvs, svn to fetch sources to build packages.

 - Up to 200 packages already available.

- **Brings interesting statistics on Erlang use**

 - Downloaded packages, system and architecture used, Erlang version...

History

■ REPOS

- Version 1.0 in December 2004
- Repository of Erlang-Projects.Org Software selection
- CD-ROM image collecting major ready-to-work Erlang software for Linux x86, MacOS X PPC, and Windows

■ ErIRT

- Version 1.0 in April 2006
- Allows minimal Erlang installation and provides package repository for Erlang/OTP and few applications
- Automatic package generation improvements

■ CEAN

- Version 1.0 in November 2006
- Is a merge of REPOS and ErIRT
- Includes standalone application generator, more packages (Erlang/OTP, user contribs, jungerl, etc...), improved web site.
- Contributor script improvements
- Makes use of BitRock to generate graphical application installer

CEAN in use

- **The packaging problem**

Why we made CEAN

- **The .pub files**

The way to describe a package

- **The contributor archive**

To allow easy contribution, making binary archives

- **The CEAN build process**

How to transform binary archives to CEAN packages

- **The CEAN web site**

First overview

- **The CEAN library usage**

The way to use CEAN using Erlang shell

- **Some Examples**

Let's try....

The packaging problem

- **Lack of Erlang contribution repository**

Erlang needs a central place to store binary ready-to-use erlang and contributions

- **Heterogeneous sources**

CVS, SVN, ZIP, TAR

configure, make, manual build

Some contributions are just an Erlang source file

- **Several systems and platforms to be supported**

Packages should work regardless of the host system

The .pub files

■ One .pub file to describe a CEAN packaged library or software

```
{author, {"Process-One", "contact@process-one.net"}}.
```

```
{packager, {"Christophe Romain", "christophe.romain@process-one.net"}}.
```

```
{name, "ejabberd"}.
```

```
{vsn, "1.1.2"}.
```

```
{depends, ["asn1", "crypto", "mnesia", "odbc", "ssl", "tools"]}.
```

```
{keywords, ["jabber", "xmpp", "server"]}.
```

```
{summary, "Erlang jabber/XMPP server"}.
```

```
{abstract, "ejabberd is a high-performance instant messaging server. "
```

```
"An instant messaging server allows to transfer presence and status information "
```

```
"between users connected to server and support real-time communications between them.<br>"
```

```
"ejabberd relies on XMPP (<i>eXtensible Messaging and Presence Protocol</i>) protocol."}.
```

```
{home, "http://www.process-one.net/en/projects/ejabberd"}.
```

```
{sources, {svn, "http://svn.process-one.net/ejabberd/branches/ejabberd-1.1.2"}}.
```

note: abstract can contain HTML code (viewable on CEAN web site)

The contributor archive

- **One archive to make CEAN packages from scratch**

This archive includes an erlang bootstrap, all .pub files, and an automatic build script

- **Performs the initial build process (for each package)**

$\text{.pub} \xrightarrow{\text{fetch}} \text{sources} \xrightarrow{\text{build}} \text{arch.tar} + \text{common.tar}$

- **Sends architecture specific binaries to Process-One**

$\text{sum}(\text{arch.tar}) \xrightarrow{\text{email}} \text{contrib@process-one.net}$

- **Allows people to add new package (adding .pub files)**

$\text{new .pub} \xrightarrow{\text{email}} \text{contrib@process-one.net}$

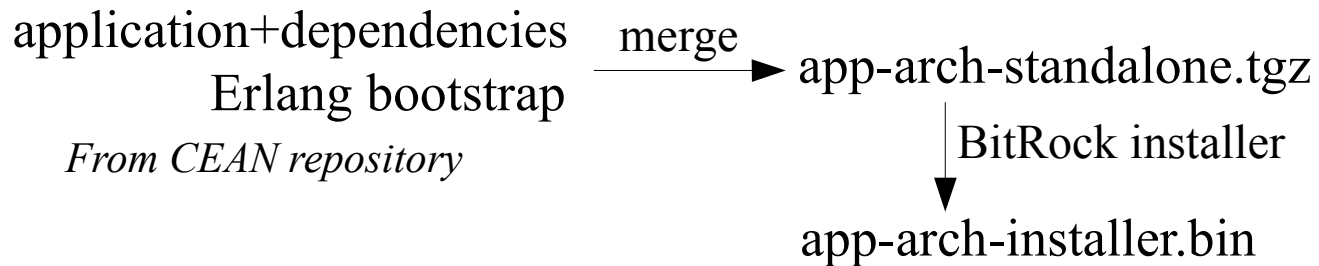
The CEAN build process

■ Build package for each contribution and each available architecture

This stage allows to apply some patches needed to support multi-platform integration. Automatic transformation are done to comply with CEAN packaging standard.



■ Generate standalone application archive and installer



The CEAN build process

■ CEAN package repository policy

All builds are transformed to comply the CEAN package repository policy:

appname-vsn/

 ebin/

 src/

 include/

 doc/

 priv/

 lib -> archdir/lib (link to host architecture directory)

 bin -> archdir/bin

 archdir/

 lib/

 bin/

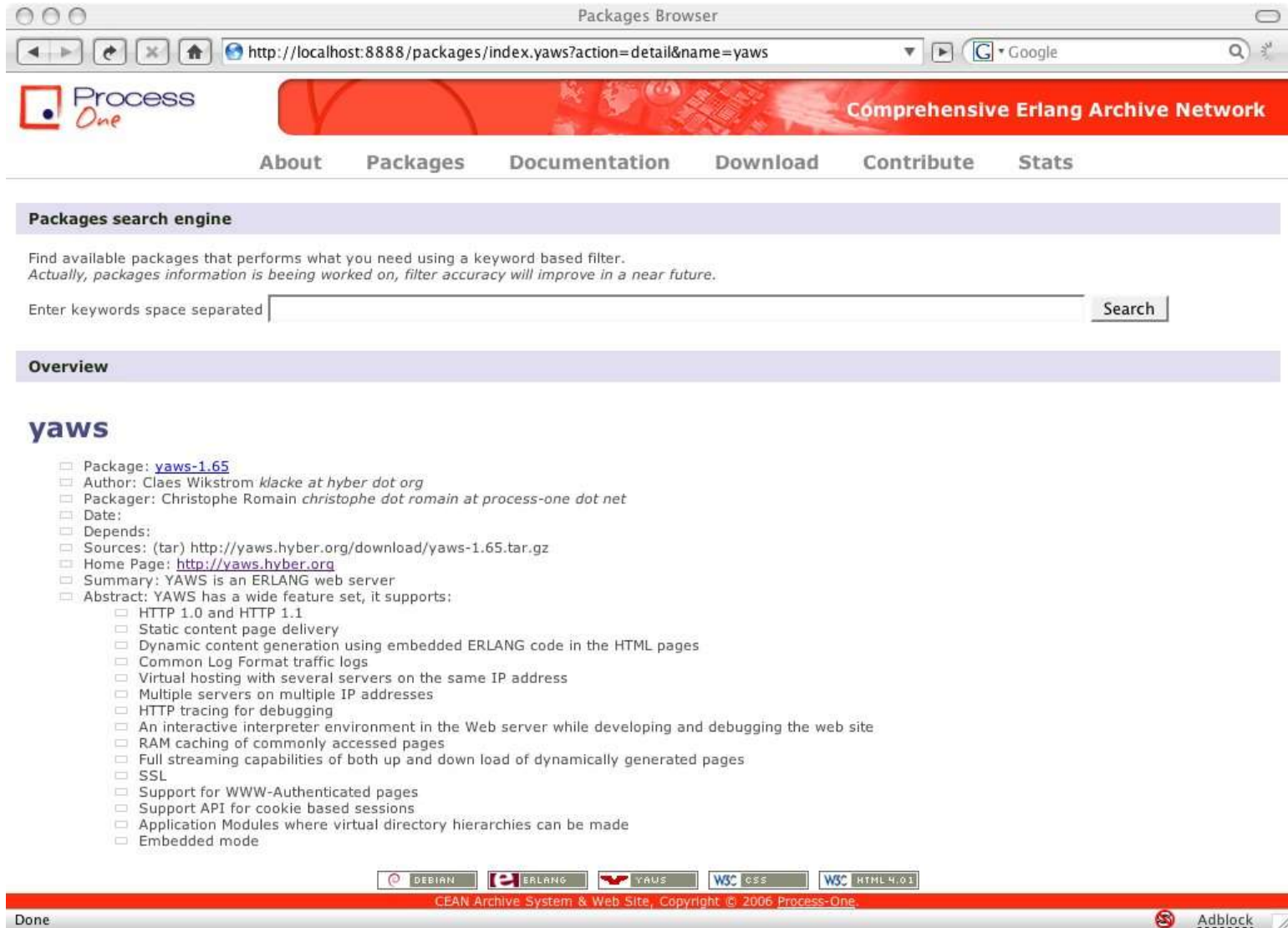
An empty directory is not necessary created.

Archdir is the « architecture specific directory ». Can be: linux-x86, darwin-powerpc, windows, sunos-sparc, etc...

■ The packages browser

The screenshot shows a web browser window titled "Packages Browser" with the address bar containing "http://localhost:8888/packages/". The page features the "Process One" logo and a navigation menu with links for "About", "Packages", "Documentation", "Download", "Contribute", and "Stats". A red banner at the top right reads "Comprehensive Erlang Archive Network". Below the navigation is a "Packages search engine" section with a text input field and a "Search" button. A note states: "Find available packages that performs what you need using a keyword based filter. Actually, packages information is beeing worked on, filter accuracy will improve in a near future." The "Overview" section lists various packages with checkboxes, including `anal`, `appmon`, `array`, `asn1`, `assoc`, `bic`, `btt`, `bucket_grid`, `builder`, `byteorder`, `ce`, `cean`, `cean_base`, `cean_installer`, `claw`, `compiler`, `cosEvent`, `cosEventDomain`, `cosFileTransfer`, `cosNotification`, `cosProperty`, `cosTime`, `cosTransactions`, `crypto`, `debugger`, `depcheck`, `dequeue`, and `dhcp`. At the bottom, there are icons for DEBIAN, ERLANG, YAJS, W3C CSS, and W3C HTML 4.01, along with a copyright notice for "CEAN Archive System & Web Site, Copyright © 2006 Process-One" and an "Adblock" extension icon.

■ Package description



The screenshot shows a web browser window titled "Packages Browser" with the URL `http://localhost:8888/packages/index.yaws?action=detail&name=yaws`. The page header features the "Process One" logo and the text "Comprehensive Erlang Archive Network". A navigation menu includes "About", "Packages", "Documentation", "Download", "Contribute", and "Stats".

Packages search engine

Find available packages that performs what you need using a keyword based filter.
Actually, packages information is beeing worked on, filter accuracy will improve in a near future.

Enter keywords space separated


Overview

yaws

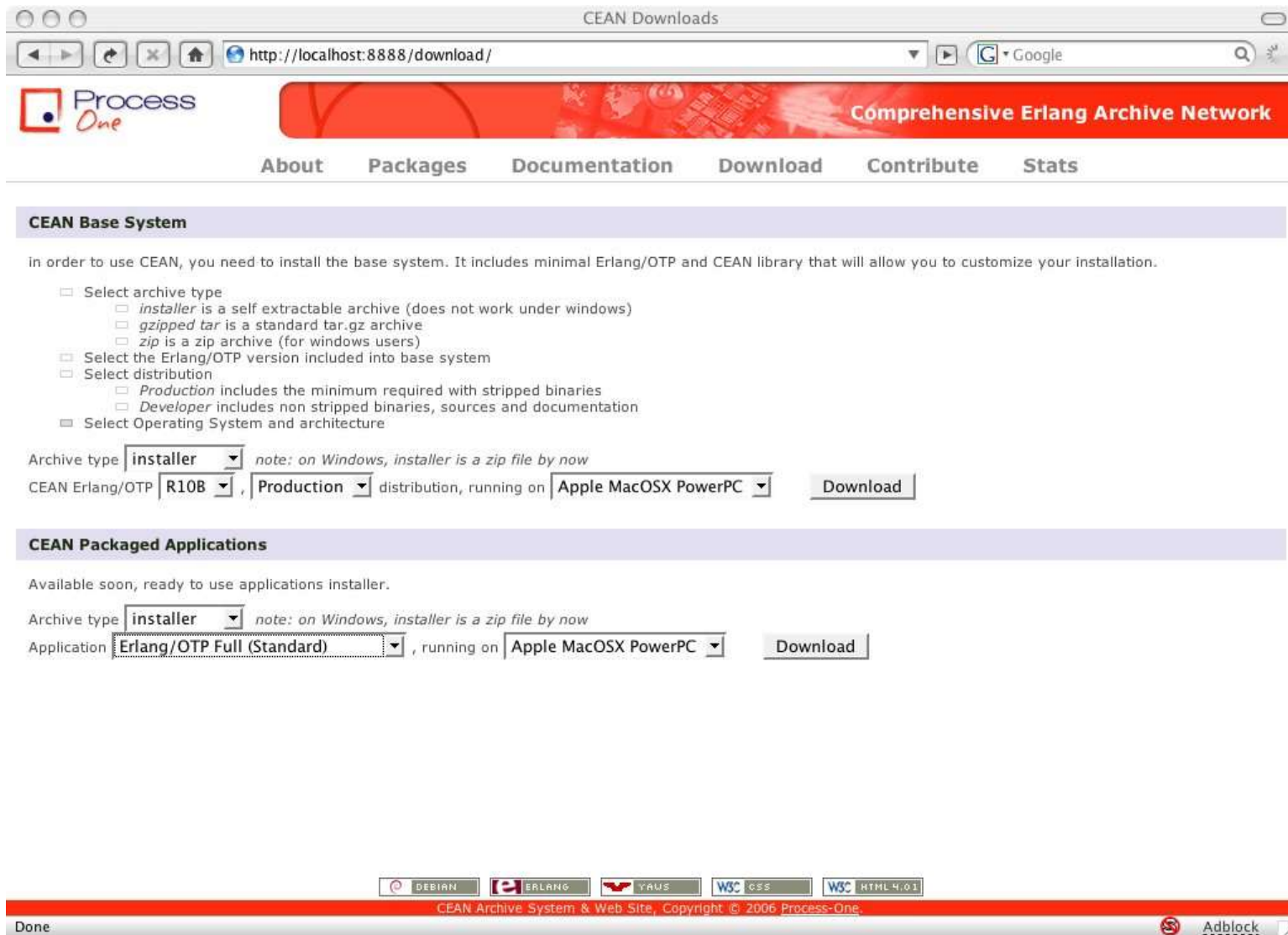
- Package: [yaws-1.65](#)
- Author: Claes Wikstrom *klacke at hyber dot org*
- Packager: Christophe Romain *christophe dot romain at process-one dot net*
- Date:
- Depends:
- Sources: (tar) <http://yaws.hyber.org/download/yaws-1.65.tar.gz>
- Home Page: <http://yaws.hyber.org>
- Summary: YAWS is an ERLANG web server
- Abstract: YAWS has a wide feature set, it supports:
 - HTTP 1.0 and HTTP 1.1
 - Static content page delivery
 - Dynamic content generation using embedded ERLANG code in the HTML pages
 - Common Log Format traffic logs
 - Virtual hosting with several servers on the same IP address
 - Multiple servers on multiple IP addresses
 - HTTP tracing for debugging
 - An interactive interpreter environment in the Web server while developing and debugging the web site
 - RAM caching of commonly accessed pages
 - Full streaming capabilities of both up and down load of dynamically generated pages
 - SSL
 - Support for WWW-Authenticated pages
 - Support API for cookie based sessions
 - Application Modules where virtual directory hierarchies can be made
 - Embedded mode

DEBIAN ERLANG YAWS W3C CSS W3C HTML 4.01

CEAN Archive System & Web Site, Copyright © 2006 Process-One.

Done  Adblock

■ Downloads



The screenshot shows a web browser window titled "CEAN Downloads" with the address bar set to "http://localhost:8888/download/". The page features the "Process One" logo and a navigation menu with links for "About", "Packages", "Documentation", "Download", "Contribute", and "Stats". The main content area is titled "CEAN Base System" and contains the following text:

in order to use CEAN, you need to install the base system. It includes minimal Erlang/OTP and CEAN library that will allow you to customize your installation.

- Select archive type
 - installer* is a self extractable archive (does not work under windows)
 - gzipped tar* is a standard tar.gz archive
 - zip* is a zip archive (for windows users)
- Select the Erlang/OTP version included into base system
- Select distribution
 - Production* includes the minimum required with stripped binaries
 - Developer* includes non stripped binaries, sources and documentation
- Select Operating System and architecture

Archive type: *note: on Windows, installer is a zip file by now*
CEAN Erlang/OTP: , distribution, running on

CEAN Packaged Applications

Available soon, ready to use applications installer.

Archive type: *note: on Windows, installer is a zip file by now*
Application: , running on

At the bottom of the page, there are logos for DEBIAN, ERLANG, YAUS, W3C CSS, and W3C HTML 4.01. A footer bar contains the text "CEAN Archive System & Web Site, Copyright © 2006 Process-One." and an "Adblock" icon.

■ Statistics

The screenshot shows a web browser window titled "CEAN Usage Statistics" with the address bar displaying "http://localhost:8888/stats/". The page features the "Process One" logo and a navigation menu with links for "About", "Packages", "Documentation", "Download", "Contribute", and "Stats". The main content area is titled "General CEAN statistics" and lists the following data:

- Packages : 182
- Platforms : 4
- Contributors : 60

Below this, the "Erlang/OTP related version downloads" section shows:

- R10B : 18 (100.0%)

The "System architecture downloads" section lists:

- Apple MacOSX PowerPC : 11 (35.5%)
- Linux Intel x86 : 10 (32.3%)
- REPOS : 0 (0.0%)
- Microsoft Windows : 10 (32.3%)

The "Packages downloads" section lists various packages and their counts/percentages:

- anal : 0 (0.0%)
- appmon : 0 (0.0%)
- array : 0 (0.0%)
- asn1 : 0 (0.0%)
- assoc : 0 (0.0%)
- bic : 0 (0.0%)
- btt : 3 (30.0%)
- bucket_grid : 0 (0.0%)
- builder : 0 (0.0%)
- byteorder : 0 (0.0%)
- ce : 0 (0.0%)
- cean : 0 (0.0%)
- cean_base : 0 (0.0%)
- cean_installer : 3 (30.0%)
- claw : 0 (0.0%)
- compiler : 0 (0.0%)

At the bottom of the page, there are logos for "DEBIAN", "ERLANG", "YAMS", "W3C CSS", and "W3C HTML 4.01". The footer text reads "CEAN Archive System & Web Site, Copyright © 2006 Process-One." and includes an "Adblock" icon.

The CEAN library usage

■ Lists available packages

cean:available(). % returns [List]

■ List installed packages

cean:installed(). % returns [List]

■ Check for a package status

cean:installed(stdlib). % returns bool()

■ Search for a package

cean:search("web server"). % returns [List]

■ Install a package and all its dependencies

cean:install(yaws). % returns ok

■ Uninstall a package

cean:uninstall(yaws). % returns ok

■ List all new versions of installed packages

cean:new(). % returns [List]

■ Upgrade a package

cean:upgrade(ejabberd). % returns bool()

■ Upgrade the whole distribution

cean:upgrade(). % returns ok

■ Check CEAN version

cean:version(). % returns string()

Some examples

■ CEAN Installation and usage

```
chris@iBook:~> sh ./cean_installer.bin
```

```
please wait...
```

```
Erlang (BEAM) emulator version 5.4.13 [source] [hipe] [threads:0]
```

```
Eshell V5.4.13 (abort with ^G)
```

```
1> cean:installed().
```

```
["cean","ibrowse","kernel","stdlib"]
```

```
2> cean:install(mnesia).
```

```
+ mnesia md5=<<160,59,224,210,56,36,169,26,180,156,142,150,164,39,8,166>>
```

```
ok
```

```
3> mnesia:start().
```

```
ok
```

```
4> mnesia:system_info(tables).
```

```
[schema]
```

```
5> cean:installed(mnesia).
```

```
true
```

```
6> cean:uninstall(mnesia).
```

```
- mnesia
```

```
ok
```

```
7> cean:installed().
```

```
["cean","ibrowse","kernel","stdlib"]
```

Some examples

■ Package search

```
1> cean:search("database").
```

```
 [{"view_backup", "Simple program for loading mnesia backup files"},  
 {"safedets", "A version of dets that never enters the repair mode"},  
 {"rdbms", "A relational database management layer on top of mnesia"},  
 {"mnesia", "A heavy duty real-time distributed database"},  
 {"gridfile", "Adaptable, Symmetric Multikey File Structure"},  
 {"dynarray", "Expanding array for heap-based storage"}]
```

```
2> cean:search("server").
```

```
 [{"yaws", "YAWS is an ERLANG web server"},  
 {"shbuf", "Erlang server for sharing Emacs buffers & Emacs-Lisp client"},  
 {"nfs", "NFS server"},  
 {"inets", "A set of services such as a Web server and a ftp client"},  
 {"gen_leader",
```

```
  "This application implements a leader election behaviour modeled after gen_server. This  
  behaviour intends to make it reasonably straightforward to implement a fully distributed server  
  with master-slave semantics"},
```

```
 {"enfs", "Minimal NFS v2 server in Erlang"},  
 {"ejabberd", "Erlang jabber/XMPP server"}]
```


Planning

■ **CEAN 1.0 beta**

- Full archives for R10B
- Partial archives for R11B
- Ejabberd self installer generated with CEAN
- Planned for mid November 2006

■ **CEAN 1.1**

- Full archives for R11B
- Automatic remote installation and deployment
- CEAN as an 'on demand' code server
- More self installable applications
- Planned for Christmass