



News from the Erlang/OTP Development team at Ericsson



What's new in R12B

No more R11B-x releases

Release of R12B 5:th of December



What's new in R12B

- New BIF's `tuple_size/1`, `byte_size/1`, `bit_size/1`

Can be used in guards and in expressions

Using

`tuple_size(Tuple)` instead of `size(Tuple)`

and

`byte_size(Binary)` instead of `size(Binary)`

makes it possible for the compiler to generate more efficient code

`size/1` can still be used but will be phased out like this:

- R12B Compiler-option to turn on warnings for use
- R13B warnings on by default but option to turn off
- R14B or R15B remove completely?



What's new in R12B

- Bitstring and Binary Comprehensions
- Performance improvements for both construction and matching of binaries and bitstrings

Example:

```
sumbytes (<<Byte, Rest/binary>>) ->  
    Byte+sumbytes (Rest) ;  
sumbytes (<<>>) ->  
    0.
```

```
fromlist ([Byte|Rest], ResultBin) ->  
    fromlist (Rest, <<ResultBin/binary, Byte>>) ;  
fromlist ([], ResultBin) ->  
    ResultBin.
```



What's new in R12B

Runtime system and compiler

Constant Pool (the compiler now builds constants and put them in a constant pool shared by all processes)

New Garbage collector makes this possible

Improved Performance and uses less memory

```
monthTab () ->
{31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31} . % constant

daysInMonth (Month) ->
    element (Month, monthTab () ) .
```



What's new in R12B

Improvements on Windows

- General performance improvement by 10% on Windows (both SMP and non SMP)
- Brand New! Support for SMP (Symmetrical Multiprocessor) on Windows
- Many general corrections and improvements



What's new in R12B

Improved error messages in the Shell

Example: Before

```
1> lists:map(10,20).
=ERROR REPORT==== 7-Nov-2007::09:34:52 ===
Error in process <0.32.0> with exit value:
{function_clause, [{lists,map,[10,20]},{erl_eval,do_ap
ply,5},{shell,exprs,6},{shell,eval_loop,3}]}

** exited: {function_clause, [{lists,map,[10,20]},{
                                {erl_eval,do_apply,5},
                                {shell,exprs,6},
                                {shell,eval_loop,3}]} **
```

Example: After

```
1> lists:map(10,20).
** exception error: no function clause matching
lists:map(10,20)
```



What's new in R12B

Misc news in runtime system and compiler

- Yecc – produces more compact and faster code.
- `process_info(Pid, ItemSpecList)`
- New module **array** with support for non destructive arrays.
- Dialyzer supports contracts
- `Driver_interface` with support for creation of threads.



What's new in R12B continued

Misc news in other Applications

- New SSL implementation written in “pure” Erlang (alpha status) (Old SSL is also delivered)
- Full support for version 3 of H.248 (Megaco)
- 30% faster ASN.1 (PER) decode thanks to the new bitstring support.
- Inets (HTTP server) more flexible start and config
- CommonTest and TestServer part of the distribution
- Mnemosyne and MnesiaSession removed from distribution

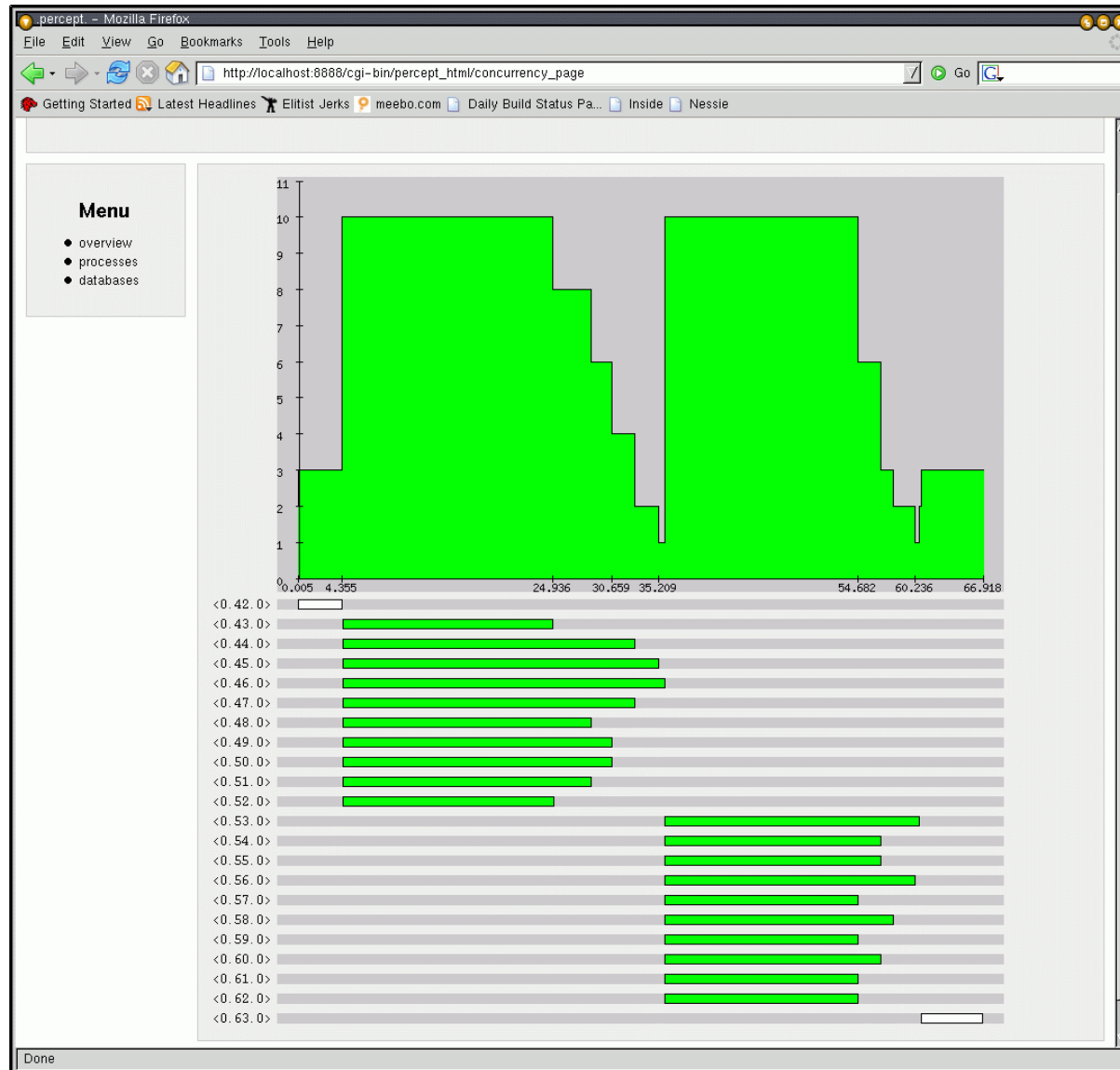


A preview of Percept

- Percept is an application-level profiler with focus on parallelism.
- Can help in finding:
 - synchronization bottlenecks
 - periods of few runnable processes
- Makes use of new trace points in the virtual machine.
- Collects data about when processes are runnable and waiting.
- Graphical interactive presentation of collected data.



A preview of Percept





A preview of Percept

```
Terminal
File Edit View Terminal Go Help
bash-2.03$ /clearcase/otp/erts/bin/cerl
Erlang (BEAM) emulator version 5.6 [source] [async-threads:0] [kernel-poll:false]
Eshell V5.6 (abort with ^G)
1> percept:profile("test.dat", {ipc_tree,go,[5]}, [procs]).
Starting profiling.
ok
2> percept:analyze("test.dat").
Parsing "test.dat"
Parsed 331 entries in 2.66650e-2 s.
    64 processes was created.
ok
3> percept:start_webserver() .
{ok,<0.102.0>}
```



A preview of Percept

```
Parent <0.1099.0>
Children []

Percentage  Total  Mean  StdDev  #recv  Module:Function/Arity
48 %      4.148778  0.000437  0.235432  9497   mnesia_locker:receive_wlocks/4
41 %      2.919009  0.001231  0.172442  2371   mnesia_tm:rec/2
1 %       0.076024  0.002924  0.020833  26     timer:sleep/1
0 %       0.020065  0.006688  0.018064  3      io:wait_io_mon_reply/2
0 %       0.014260  0.014260  0.000000  1      code_server:call/2
```



Tentative Goals for 2008

- More SMP improvements
- "Standalone Erlang" different aspects
 - Tools for making a "compact" but complete target system
 - Code loading from archive files (enabling a target system with few files)
 - Escript improvements
- SCTP improvements
- Division of distribution into parts (Basic, Extra1, Extra2,...)
- Better handling of huge amounts of processes e.g. processes (`Filter`)



Tentative Goals for 2008 continued

- Release of documentation sources in XML
- New SSL replaces old SSL
- Improved I/O: Faster, support for STDERR
- EEP's about "export to", FFI and new BIF's for searching in binaries
- Much better regexp support possibly a driver
- Syntax for contracts stable, ready for general use
- Contract syntax used in Edoc and Docbuilder
- Erlide the Eclipse plugin for Erlang will be really useful (<http://erlide.sourceforge.net>)
- Erlang binding to wxWidgets will be improved (Windows, Linux, Mac OS X, Solaris 10) (<http://sourceforge.net/projects/wxerlang>)

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