News From the OTP TEAM

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Outline

› Planned Releases
› Next major release (20)
› OTP 21 and beyond

Planned Releases

- 1 major release per year (20, 21, …)

- 3 planned "correction packages" like 20.1, 20.2,...

- Emergency packages as needed (20.1.3)

- Maint branch = 19.X

Master branch = next major

- **Got valuable feedback from RC1 and 2**

☑ **OTP 19.3 March 15**

☑ **OTP 20 RC1 May 03**

☑ **OTP 20 RC2 May 31**

☐ **OTP 20 June 21**

☐ **OTP 20.1 September**

☐ **OTP 20.2 December**

☐ **OTP 20.3 March**

☐ **OTP 21 June**

Next major
potential incompatibilities

- Non SMP Erlang VM, deprecated and not built by default
- Remove deprecated `erlang:hash/2`
- `erlang:statistics/1 with scheduler_wall_time` now also includes info about dirty CPU schedulers.
- New purge strategy introduced in OTP 19.1 is mandatory and slightly incompatible for processes holding funs see `erlang:check_process_code/3`.
- The NIF library reload is not supported anymore.
- **Asn1**: Deprecated module and functions removed (`asn1rt, asn1ct:encode/3 and decode/3`)
- **Ssh**: client only options will fail when starting a server

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[June 21, 2017]

☑ OTP 20.0-rc1 May 03

☑ OTP 20.0-rc2 May 31

Highlights
Erlang VM

- Dirty schedulers enabled and supported on VM with SMP support.

- support for "dirty" BIFs and "dirty" GC.

- `erlang:garbage_collect/2` for control of minor or major GC

- Erlang literals are no longer copied when sending messages.

- `./configure --enable-lock-counter` for building an additional VM with support for lock counting.

- To start the lock-counting emulator, use `erl -emu_type lcnt`.

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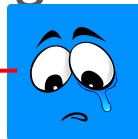## [June 21, 2017]

☑ OTP 20.0-rc1 May 03

☑ OTP 20.0-rc2 May 31

Highlights
Erlang VM continued

- Improved performance for large ETS tables, >256 entries (except `ordered_set`)

- `erlang:system_info/1` `atom_count` and `atom_limit`

- Reduced memory pressure by converting sub-binaries to heap-binaries during GC

- `enif_select,` map an external event to message

- ~~Improved IO scalability~~

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[June 21, 2017]

☑ OTP 20.0-rc1 May 03

☑ OTP 20.0-rc2 May 31

Highlights
Compiler

- improved code generation for complicated guards

- Warnings for repeated identical map keys.

  `#{'a'=>1, 'b'=>2, 'a'=>3}` will warn for the repeated key `a`.

- warning by default when `export_all` is used.

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[June 21, 2017]

☑ OTP 20.0-rc1 May 03

☑ OTP 20.0-rc2 May 31

Highlights
Compiler continued

- optimized pattern matching for maps

- new option `deterministic` to support repeatable builds

- Atoms may now contain unicode characters.

- `compile:file/2` has an option to include extra chunks in the BEAM file.

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[June 21, 2017]

☑ OTP 20.0-rc1 May 03

☑ OTP 20.0-rc2 May 31

Highlights misc 1

- Unnamed ets tables optimized

- new `ets:select_replace/2` for atomic "compare-and-swap"

- new event manager to handle a subset of OS signals in Erlang

- optimized `sets` `add_element`, `del_element` and `union`

- Added `rand:jump/0-1`

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[June 21, 2017]

☑ OTP 20.0-rc1 May 03

☑ OTP 20.0-rc2 May 31

Highlights misc 2

- When a gen_server crashes, the stacktrace for the client will be printed
- size of crash reports from `gen_*` and `proc_lib` limited with

  `error_logger_format_depth`
- `take/2` has been added to `dict`, `orddict`, and `gb_trees`.
- `take_any/2` has been added to `gb_trees`.

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[June 21, 2017]

☑ OTP 20.0-rc1 May 03

☑ OTP 20.0-rc2 May 31

Highlights misc 3

- Significantly updated `string` module with unicode support
- `erl_tar` support for long path names and new file formats
- SSL: DTLS experimental support
- SSH: improving security, removing and adding algorithms
- New `math:fmod/2`

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[June 21, 2017]

☑ OTP 20.0-rc1 May 03

☑ OTP 20.0-rc2 May 31

OTP split, first step

- Separate repos for:
  - Percept
  - … delayed ...
- Typer moved to Dialyzer
- The separate applications are built with Rebar3
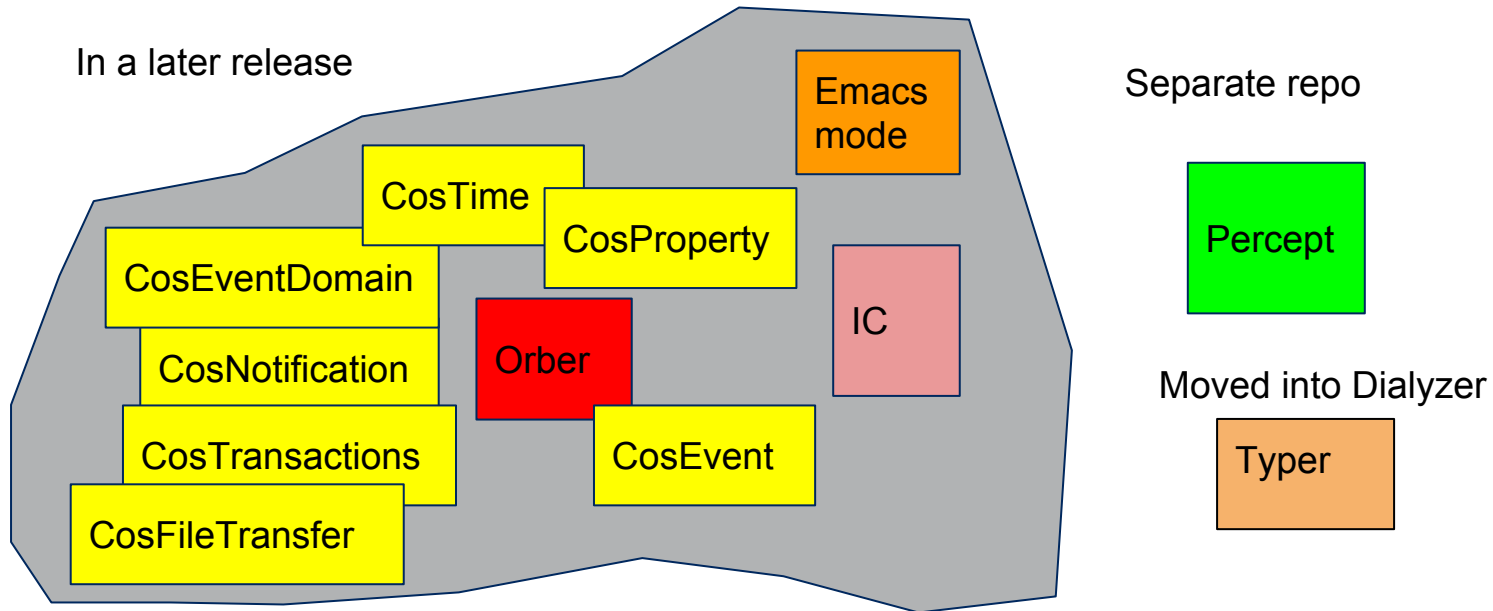- Repos will be at `github.com/erlang`

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[June 21, 2017]

☑ OTP 20.0-rc1 May 03

☑ OTP 20.0-rc2 May 31

Split: first step in OTP 20

In a later release

Emacs mode

CosTime

CosProperty

CosEventDomain

IC

CosNotification

Orber

CosTransactions

CosEvent

CosFileTransfer

Separate repo

Percept

Moved into Dialyzer

Typer

OTP repo

asn1, common_test, compiler, crypto, debugger, dialyzer, diameter, edoc, eldap, erl_docgen, erl_interface, erts, et, eunit, hipe, ic, inets, jinterface, kernel, megaco, mnesia, observer, odbc, os_mon, otp_mibs, parsetools, public_key, reltool, runtime_tools, sasl, snmp, ssh, ssl, stdlib, syntax_tools, tools, wx, xmerl (**37 applications**)

OTP 21 and beyond

› Rewrite efile-driver as NIFs

› Rewrite inet-driver as NIFs using enif_select

› Distribution

  – (100 nodes)

  – Heterogenous

  – Distributed Hash Table (as alternative to Global) **Ongoing!**

› Continue split OTP

› More on scalable ets-tables

› New features for VMs and containers, microservices

› JIT (based on LLVM)