# Recent Releases and Plans for Base 3.14, 3.15, 3.16 and Beyond

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# Outline

- Recent and Imminent Releases
  - Base 3.16.0.1
  - Base 3.15.4
  - Base 3.14.12.6
  - EPICS V4.5.0.2
- Current Developments
- Future Release Plans
  - EPICS V4.6
  - Base 3.16.x
- Combining Base 3.x and V4

# Base 3.16.0.1 — 3 March 2016

- Developer release, not for production use!

- New features:
  - Record locking code rewritten: No global locks, code can lock multiple lock-sets at once.
  - The epicsTime routines now return a status value **`S_time_`**… , not just **`epicsTimeERROR`**
    - General Time provider routines must be updated, see Release Notes for details.
  - Internal memory allocator APIs instrumented for use with valgrind.
  - GNU Readline can be disabled at runtime, useful when running an IOC from a script.
  - Compress record type now supports both FIFO (default) and LIFO buffering.

- Also included changes from the 3.15 and 3.14 branches

# Base 3.15.4 – 27 May 2016

- Release managed by Ralph Lange

- Most new features are backwards-compatible:
  - IOC's CA server can be configured to connect to specific network interface(s)
    - EPICS_CAS_INTF_ADDR_LIST, EPICS_CAS_IGNORE_ADDR_LIST, EPICS_CAS_BEACON_ADDR_LIST
  - IPv4 multicast addresses can be used for UDP traffic (PV name searches & beacons)
  - Some environment variables are now set by the IOC to provide the Base version and build architecture. An application can now use one iocBoot/ioc directory for all unix-like OS's.
  - The DBD file's promptgroup() is now a free string, and all record types in Base have been updated with better group names and groupings
    - VisualDCT users will need the latest release to accept the new group names.
    - Other DCTs or tools that read DBD files may need to be similarly modified.
    - Unmodified record types will have the old GUI_xxx strings replaced
  - New device support "getenv" added for stringin and lsi (long string input) record types.
- Also includes changes from the 3.14 branch

# Base 3.14.12.6 — June/July 2016

- Stable release, mostly bug-fixes

- Some fixes have been published as patch files against Base-3.14.12.5
  - Fix for the CALC engine's bit-wise operators when an operand has the MSB set.
  - CA get operation with a compound data type is now atomic.
    - CA monitors have always been atomic (both data and metadata fetched with lock held).
  - Additional build-time check of module RELEASE files:
    - Pointers to other modules may only share a path when listed on adjacent lines.
    - Important for Debian where packaged modules all share one INSTALL_LOCATION.
  - Minor improvements to the NTP time provider on RTEMS and VxWorks.
  - A few buffer-overflow / stack corruption / IOC shutdown bugs fixed.
  - Fixes for newer versions of some compilers, mostly on Windows.
  - Removing $Release-Id$ keywords, not supported by git

# EPICS V4.5.0.2 — 25 May 2016

- Bug-fix release for the training session on Tuesday
- Contains updates for some of the V4 C++ modules (no Java release planned)
  - pvDataCPP 5.0.4:
    - Two issues fixed related to bit-set operations and serialization
  - pvAccessCPP 4.1.3:
    - Fix for queuing monitor events under overrun conditions
  - pvaSrvCPP 0.11.3, 0.11.4:
    - Three issues fixed related to serving monitors
    - Support for MinGW and Cygwin
    - Fixes related to behavior of fields, structures and enums
    - Fixes around weak pointers and locking

# Current Developments — Base

- New features already in Base 3.16 branch:
  - iocsh does not echo comments in st.cmd files that start with #-
  - Cleanup / removal of unused or unnecessary C++ APIs.
- Feature branches currently being reviewed for Base:
  - IOC support for 64-bit field types.
  - Optimize loading of IOC databases.
  - New libCom API to provide a monotonic high-resolution time source.
- Other work for Base still in development:
  - Modular link-support API (needed for pva link type)
  - Automated Testing of Base using QEMU and WINE

# Future Release Plans

- EPICS V4.6 — timetable TBD
  - pvDatabase supports channelRPC on the same channels as get/put/monitor.
  - Major reorganization of examples (exampleCPP and exampleJAVA).
  - Pipelining — window configurable at connection time.
  - Fix problems with Boost version in pvCommonCPP clashing with OS's Boost.
- Base 3.16.1 (September 2016 or earlier)
- After Base 3.16.x we will combine Base with the V4 modules
  - We will continue to release the V4 modules separately for earlier Base releases.

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# Suggestion

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Combination of V3 and V4 $\Rightarrow$ EPICS 7