

EPICS Status and Roadmap

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Outline

- Base-3.14 — Stable branch
- Base-3.15 — Current branch
- Base-3.16 — Development branch
- EPICS Version 4 — New Data and Network APIs
- APS EPICS Extensions



Base-3.14 – Stable branch

- Future releases from this branch will only provide bug fixes and build system updates
- Last release was 3.14.12.5 on 2015-03-24
- 4 patches to this available from the Known Problems page:
 - Updates for Cygwin and Microsoft VS2015 users
 - Fixes for GNU readline and IOC-local CA client code
- Additional changes in the code repository:
 - New iocsh command `dbPutAttribute` (was always available from VxWorks shell)
 - Minor bug fixes in many areas
- A release date has not been set for Base-3.14.12.6 incorporating these changes
 - Contact me if an official release would help with an upcoming deadline of yours



Base-3.15 for 3.14 users

- Many updates and enhancements, which were developed over 4+ years:
 - Internal code reorganization, updates to the GNUmake build rules; more unit tests
 - New spin-locks API in libCom; other libCom APIs modified; some 64-bit integer support
 - New thread-pool API; optional support for parallel callback threads on SMP systems
 - New iocshLoad command executes startup script fragments with macro arguments
 - Support module shared libraries can be built to be loaded at run-time using dlopen
 - New IOC extension points (hooks): dbLoadRecords, asTrapWrite, thread creation.
 - Named soft events (EVNT is now a string); array fields can be double-buffered
 - Non-VAL fields have attributes; DBE_PROPERTY events posted automatically on VAL
 - Alarm rate filtering; UDFS field for severity of UDF alarms; units in scan rates
 - CA server-side filtering: time-stamp, dead-band, synchronization, sub-array access.
 - Fanout and sequence records have 16 links; cleanup subroutine added to aSub record



Base-3.15 – Current branch

- Future releases from this branch may add minor enhancements, fix bugs and add support for new target architectures
- Last release was 3.15.2 on 2015-05-14
- 3 patches to this available from the Known Problems page
- Additional changes in the code repository
 - Several fixes for possible race-conditions at IOC shutdown
 - Includes all bug-fixes from the 3.14 branch
- A release of Base-3.15.3 is planned for this month (October 2015)
 - Ralph Lange (ITER) is responsible for releases from this branch
 - Additional features may be added before the release



Base-3.16 Enhancements

- This branch is the development focus, where major new features get added to Base
- VxWorks 5.x is no longer supported, VxWorks 6.8 or later recommended
- Incorporates reworking of several IOC subsystems
 - Record locking subsystem replaced: global mutex removed, multi-locking supported
 - Record link field parser rewritten
 - Record scanning subsystem enhanced
- Some API changes may break code written for older releases
 - The epicsTime routines now return an error status code, not just OK or ERROR
- More tests — 3.16 currently has 9,387 built-in unit tests
 - 3.14 branch has 2,424 unit tests, 3.15 branch has 8,894



Base-3.16 – Development branch

- No releases have been made from this branch yet
- An initial release from the 3.16 branch is possible before the end of 2015, but will be a developer release (i.e. not recommended for production use)
 - Michael Davidsaver has developed many of the changes on this branch



EPICS Version 4 – Status

- Version 4.5.0 released on 2015-10-12
- Numerous changes to existing modules, e.g.:
 - pvDataCPP, pvDataJava: Make the pvData API faster and easier to use correctly
 - normativeTypesCPP: Now implements the 2015-03-16 Normative Types spec
 - pvAccessCPP: Added CA transport to pvget, pvput, pvinfo programs; performance improved on 10Gb networks; support for asynchronous RPC services
 - pvAccessJava: Support for asynchronous RPC services
 - pvaSrv: Builds against both Base-3.14.12.x and Base-3.15.2 or later
 - pvaPy: Support for union types; field access using Python native types; uses pvaClientCPP
- Adds several new sub-modules
 - normativeTypesJava — implements the 2015-03-16 Normative Types spec
 - pvaClientCPP, pvaClientJava: Synchronous client APIs for pvAccess, simpler to use
 - pvDatabaseJava: Synchronous server framework for IOC-like applications



EPICS Version 4 – Roadmap

- The EPICS V4 modules are developed separately from EPICS Base
 - Eventually the C++ pvData and pvAccess modules will be merged into Base
 - The result will be named EPICS Base-4.x
 - Channel Access will remain in Base, but may become optional for the IOC
- Network protocol stability or compatibility is seen as important going forward
- The V4 developers hope to work on these projects:
 - A pvAccess equivalent of the PV Gateway
 - The ability to access data from a group of PVs on one server as a single PV Channel
 - Mainly for IOC servers using pvaSrv, both dynamic and static groups should be possible
- The V4 developers will be meeting to develop more specific plans in November



APS EPICS Extensions

- With Janet Anderson's retirement, maintenance of the Motif-based EPICS Extensions by the APS will be significantly reduced:
 - MEDM, StripTool, ALH, Probe
- Additional APS Extensions programs will probably be added to this list
- The CVS histories of these tools have been converted to Git and uploaded to github
 - <https://github.com/epics-extensions>
- All future maintenance of these modules will be managed through github
- Offers of help and pull requests for fixes welcomed!

