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VOLTTRON 10
Modular updates

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VOLTTRON™

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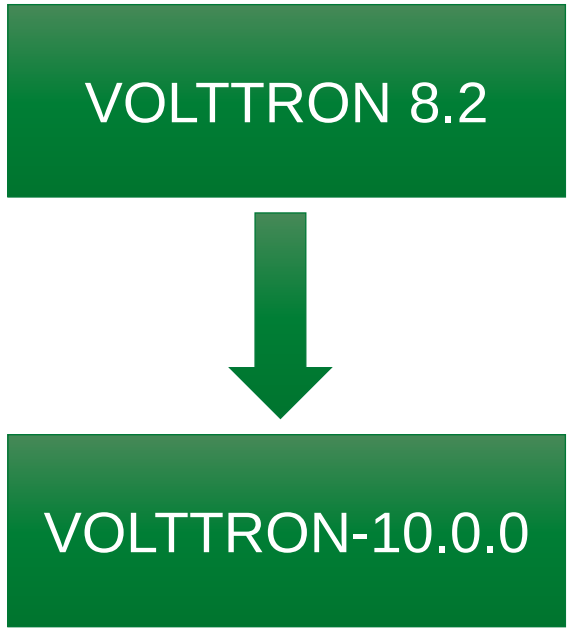
Recap of what is changing between 8.2 and 10.0.0



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VOLTTRON 8.2

- Single repository for all components
  - core, services, utilities, and agents
  - Base classes for customized (Historian, Market, Drivers) agents
  - Contributed code – some of which we don't have access/resources to test and keep up to date.
- Different code formatting in different parts of the repository
- Internal JIRA board used for tasking

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VOLTTRON-10.0.0

- Platform in a single repository (https://github.com/VOLTTRON/volttron-core)
- Service agents in their own repositories
- Pluggable services and auth
- Standardized agent repositories
- New repositories for base classes determined as necessary (Historian base, Market, etc)
- Testing Repository
- Tooling – Github actions for CI
- Base docker image from volttron-core
- Transparency, all issues available to look at on GitHub (https://tinyurl.org/volttron-board)

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VOLTTRON Core – Current state

- Modular VOLTTRON alpha version available from PyPi
  - pip install volttron (for now this will install latest develop version)
  - Contains core volttron – server, client, and utils
  - Uses github actions for automated testing
  - Automated PyPi release – any push to develop branch would create a new alpha wheel to PyPi

- Next step:
  - Work towards an official 10.0.0 release by end of October
  - Automated testing core agents before official release

VOLTTRON agents vs libraries

Agents:

- Have source code + data
- Data is stored in $VOLTTRON_HOME
- Can have multiple instance of same agent
  - All instances share same source code
  - Unique data directory – i.e. unique vip identity and agent directory
- Install using vctl install command
  - Installs source code in python (virtual) environment
  - Creates unique vip identity and agent directory
- Naming convention – volttron-<agent name>

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VOLTTRON agents vs libraries

Libraries:

- VOLTTRON libraries are source code used by other agents.
- Installed in python (virtual) environment
- Doesn’t have any data associated with it
- Naming convention - volttron-lib-<library name>
  - volttron-lib-base-historian, volttron-lib-modbus
- pip install <library name> Similar to installing any third-party library
  - pip install numpy
  - pip install volttron-lib-base-historian
- In most cases these will be installed by default when installing an agent

Standardized Agent Repositories – Current Status

- Initial agents ported to modular design
  - Listener agent - https://github.com/VOLTTRON/volttron-listener-agent
  - Historian agent
    - ✓ Base libraries –
      - https://github.com/VOLTTRON/volttron-lib-base-historian
      - https://github.com/VOLTTRON/volttron-lib-sql-historian
    - ✓ SqliteHistorian - https://github.com/VOLTTRON/volttron-sqlite-historian
  - Platform driver agent
    - ✓ volttron-lib-base-driver - https://github.com/VOLTTRON/volttron-lib-base-driver
    - ✓ volttron-platform-driver - https://github.com/VOLTTRON/volttron-platform-driver
    - ✓ volttron-lib-fake - https://github.com/VOLTTRON/volttron-lib-fake

Standardized Agent Repositories – Current Status

- Pre-commit hooks for PEP 8 and yaml/json formatting.
- Poetry build
- Github workflow integration for
  - Static code analysis done using codeql
  - Automated agent testing on commit using test utilities at https://github.com/VOLTTRON/volttron-testing
  - Creates develop wheels and pushed to PyPi

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Task progress

- Completed tasks
  - Published volttron alpha version to PyPi
  - Ported ListenerAgent, SqliteHistorian, PlatformDriver agent with fake driver
  - Test framework repository with mock server for unit testing
- In progress
  - Authentication abstraction
  - Add platformwrapper to test repository for integration testing
  - Update documentation
- Next steps
  - Port driver libraries – DNP3, BACnet
  - Port – Postgres/TimescaleDB historian, Platformweb, Forwarder,
  - 10.0 Release – End of October

Questions? Comments?

- https://tinyurl.com/volttron-board or https://github.com/orgs/VOLTTRON/projects/6/views/5
- https://github.com/VOLTTRON/volttron-core
- https://github.com/VOLTTRON/volttron-developer/blob/main/PNNL-32485-code-modular-white-paper.pdf

- Get involved
  - Create an issue, provide guidance on your use case