

# FATE Dev Team Meeting

2022/2/10

# Agenda

- FATE OSS Development Team
- FATE open source project development process
- FATE security handling process
- Working groups of FATE
- FATE 1.8 and 1.7.2 update
- Planning for FATE 1.9

# FATE OSS Development Team (开发工作组)

- Lead:
  - Henry Zhang, 张海宁
- Members:
  - Junxue Zhang, 张骏雪
  - Yongkai Zhou, 周雍恺
  - Dylan Fan, 范涛
  - Jarvis Zeng , 曾纪策
  - Layne Peng, 彭麟
  - Xiaolin Li, 李小林

# Missions of FATE OSS Project

- Create an open OSS community (participation, contribution and collaboration)
- Democratize the development process
- Attract more contributors and users
- Build FATE as a common platform of FML.

# FATE open source development guidelines

- Development cadence: 3 major releases per year
- Major / minor release: new features / bug fixes ?
  - Major releases: 1.6, 1.7, 1.8
  - Minor releases: 1.6.x, 1.7.x, 1.8.x
- Maintaining latest 2 major releases (bug fixes, backports)
  - Each major release, only maintain the latest minor release
  - Users are recommended to upgrade to the latest releases
  - Need to provide upgrade mechanism for users
- FATE 1.5 LTS support
  - 2 years ( Nov 13, 2020 – Nov 13, 2022)
  - May extend the support depending on user feedback.
  - Will announce in advance to leave enough time for migration

# FATE open source development process

- Process
  - Gather requirements and issues
  - Discuss and create development plan ( features, effort estimate, priority )
  - Dev plan reviewed and approved by more than half of Dev Team members, and must be approved by Dev Team Lead
  - Bi-weekly meeting (public) for monitoring project progress (on Github)
  - Create Release Notes
  - Before releasing a new version, approval from more than half of Dev Team members, and must be approved by Dev Team Lead, followed by the approval of TSC Board
  - Monitoring feedback and respond (Github issues)
- Minor release may use a simplified process to reduce workload
- When possible, all processes are publicly visible through Github
  - Potential issues: CI resources

# Quick Walkthrough on Github process

- Dev Team members require Github account
- Reduce meeting time and improve efficiency
- Requirement gathering
- Project dashboard
- Review and approval process

# FATE Releases

- Main release:
  - FATE, FATE-Board, FATE-Flow, AnsibleFATE,
  - KubeFATE
- Other release:
  - FATE-Serving
- Archived releases?
  - FATE-Cloud, FedVision, FedRec, etc
- Potential multiple ongoing releases



# FATE Security Handling Process

- Handle the security issues or vulnerabilities
- After receiving security information, need to confirm and evaluate the severity.
- Come up with a remedy plan in a timely manner
- Report and get approval from TSC Board of releasing a patch.
- ToDo
  - Severity evaluation criteria
  - Remedy process

# Working Groups of FATE

- To focus on a specific development topics of FATE
- Security WG : Junxue Zhang
- Process WG : Dylan Fan, Layne Peng
- Interoperability WG
- Others...

# Feature list of FATE 1.8.0 (Target date: Apr 15)

## ➤ FederatedML

- \* Add SecureBoost-MO algorithm to speed up multi-class classification of Hetero & Homo SecureBoost
- \* Merge Hetero FastSecureBoost into Hetero SecureBoost as a boosting strategy option
- \* Add non-coordinated-version Hetero Linear Regression, based on integrated Hetero GLM framework, with mixed protocol of HE and SPDZ
- \* Support weighted training in non-coordinated Hetero Logistic Regression & Linear Regression
- \* Homo LR support one-vs-rest

- ## ➤
- \* Speed up DH Intersection implementation, 30%+ faster
  - \* Optimized Quantile Binning gk-summary structure & split point query

## > FATE-ARCH

- \* Adjustable task\_cores for standalone FATE

## > FATE-Test

- \* Optimized testsuite printout table colorization
- \* Optimized testsuite printout summary status
- \* Include Paillier encryption performance evaluation
- \* Include examples data upload and mnist download
- \* Provide pipeline to dsl convert tools.

## > FATE-Flow

- \* Optimize the model migration function to reduce user operation steps
- \* Add version compatibility check in component center to support multiple parties to use different versions
- \* Add batch disable table interface, and clean up tables based on filter fields

## > FATE-Board

- \* Supports GBDTMO mode in SBT.
- \* Add SSHE linr component.
- \* Add Writer component.

# Features of FATE 1.7.2 (target date: Feb 28)

## > FederatedML

- \* New batch strategy in coordinated Hetero LR: support masked batch data and batch shuffle
- \* Model inference protection enhancement for Hetero SecureBoost with FED-EINI algorithm
- \* Hetero SecureBoost supports split feature importance on host side, disables gain feature importance.

## > FATE-Flow

- \* Separate the base connection address of the data storage table from the data table information, and compatible with historical versions;
- \* Optimize the component output data download interface;

## > FATE-Board

- \* Support FATE-Board v1.7.2.1

## > Bug-Fix

- \* Fixed Bug for HeteroPearson with changing default q\_field value for spdz
- \* Fix Data Transform's schema label name setting problem when `with\_label` is False

# Planning for FATE 1.9

- Full development cycle on Github
- Estimate development cycle.
- Community promotion
- Todo: determine members to work on tasks