# Process Improvements

Chapel Team, Cray Inc.

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# Outline

- Issue Tracking: JIRA
- Chapel Improvement Proposals (CHIPs)

# Issue Tracking: JIRA

# JIRA: Background

- **Chapel has historically lacked an issue tracker**
  - Use “futures” to track certain bugs, feature requests, etc.
    - essentially tests that we run, but don’t expect to work yet
    - can compliment, but not replace an issue tracker
  - Relied on email for “issue tracking”

- **Many reasons to use an actual issue tracker**
  - Better for developers:
    - shared central location
    - SCM and regression testing integration
    - ownership, prioritization, categorization
    - easy access to comments, status, history, etc
  - Better for users:
    - easy to find, track, and upvote existing issues

# JIRA: This Effort

- **Decided on JIRA as our issue tracker**
  - Surveyed popular issue trackers
    - narrowed choice down to JIRA and GitHub issues
  - Ultimately chose JIRA because of flexibility
    - highly configurable and has rich plugin support

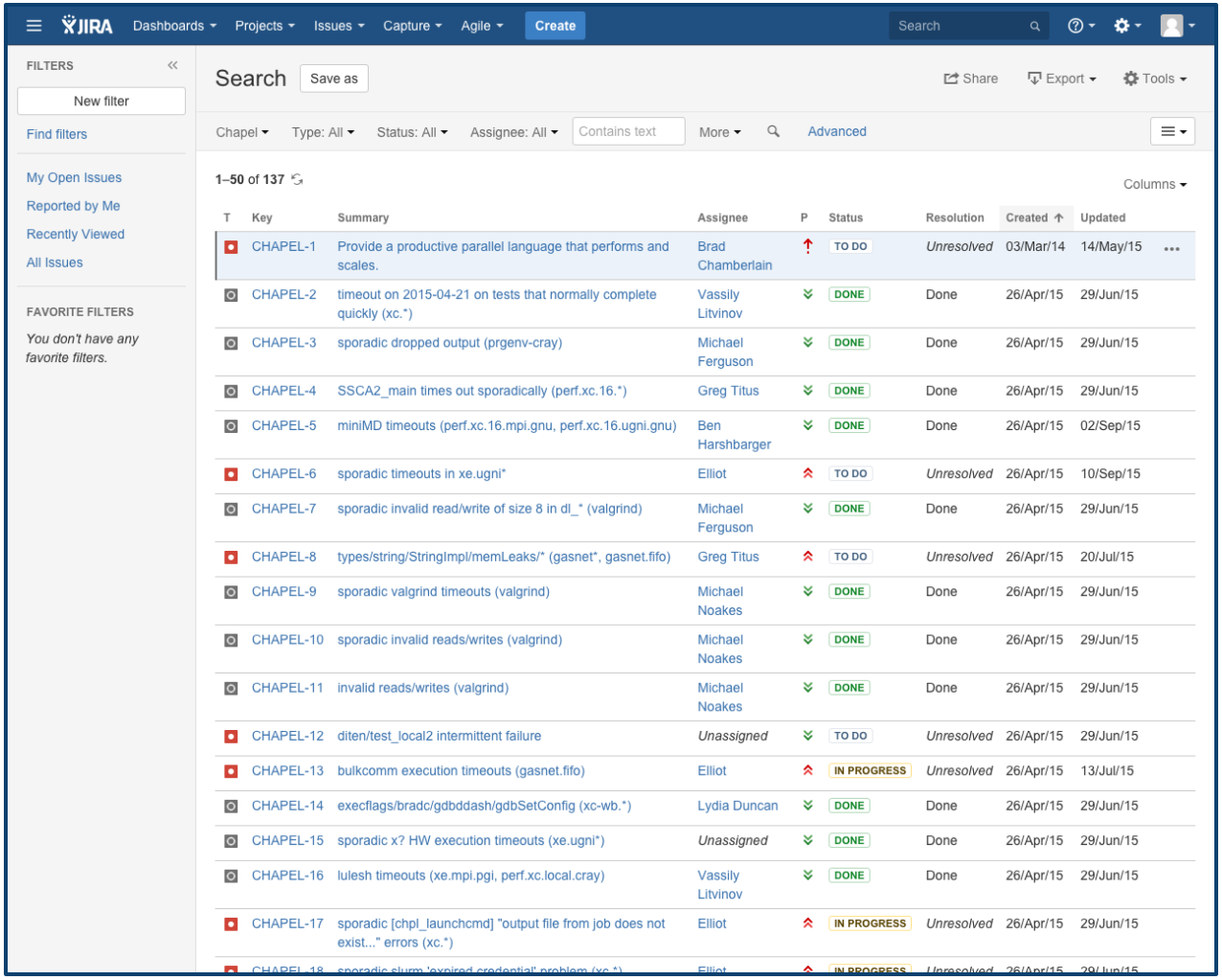
- **Started tracking regression testing with JIRA**
  - We historically used a text file under source control
    - simple, but cumbersome and completely manual
  - Regression testing is developer-oriented
    - made for a good trial run
    - improve our process on non-user-facing issues

# JIRA: Impact

- **Made triage easier**
  - Updates are immediately visible to all developers
  - No need to prune/clean-up old information manually
    - which also makes tracking sporadic issues easier

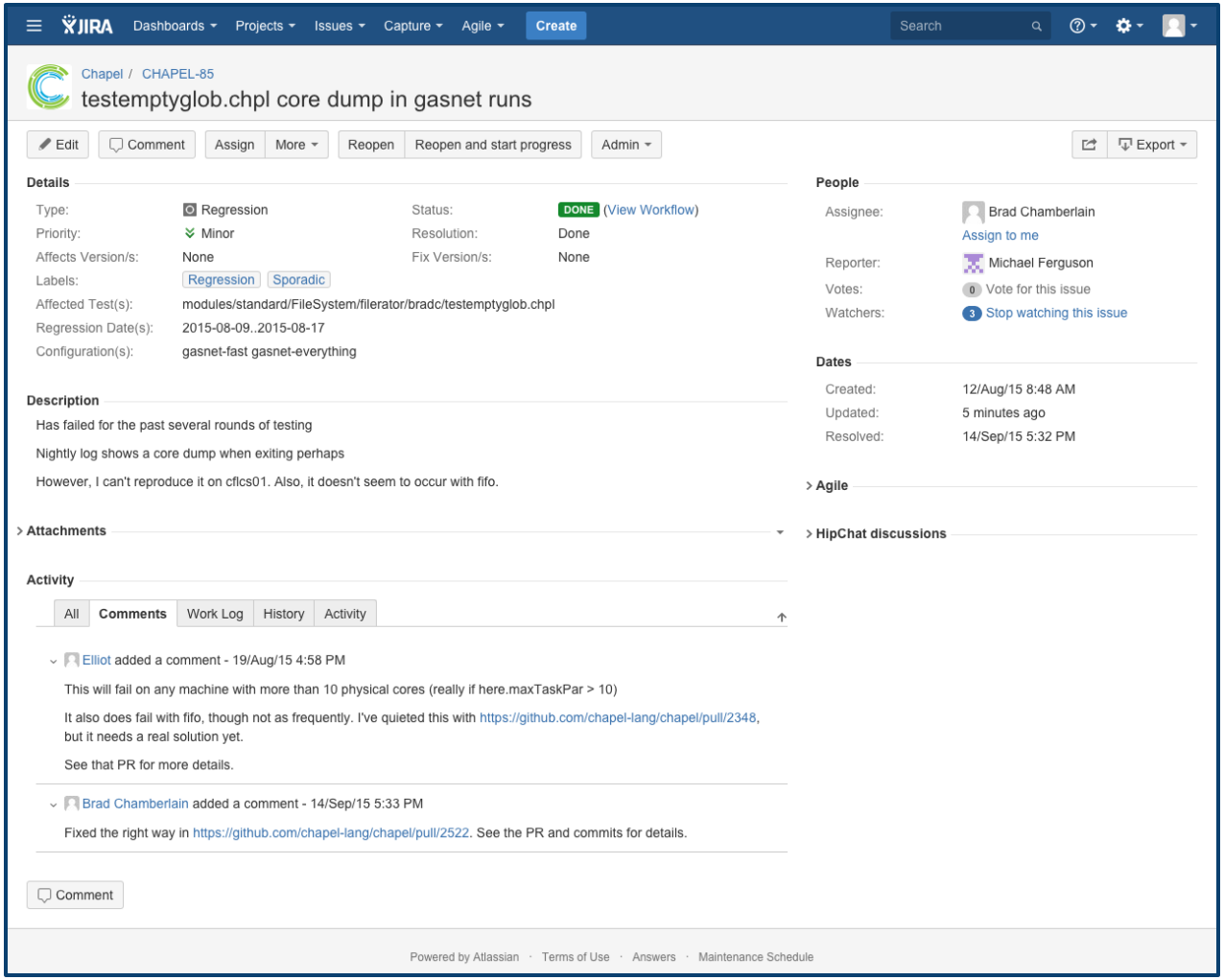
- **Improved bug fixing process in general**
  - Now much easier to…
    - … collaborate with other developers
    - … add comments to an issue
    - … identify related issues
    - … track the progress of an issue
    - … share an issue with others

# JIRA: This Effort




https://chapel.atlassian.net/projects/CHAPEL/issues/

# JIRA: This Effort



# JIRA: Status and Next Steps

## Status:

- Successfully using JIRA to track regression testing
- Available online at: https://chapel.atlassian.net/projects/CHAPEL/summary
- Recently started tracking string-as-rec issues

## Next Steps:

- Make the JIRA project more user-oriented
  - add issues for existing futures and user bugs
  - start using voting mechanism
  - but leave issue creation for developers initially
    - explore options for users to file issues directly – e.g., web portal?

# Chapel Improvement Proposals (CHIPs)

# CHIPs: Background

- **There are many ideas for improving Chapel**
- **However…**
  …significant time may pass before implementation starts
  …the people involved may change before implementation is complete
- **Not all good ideas make it past these barriers**

# CHIPs: What is a CHIP?

- **Significant changes should go through these steps:**
  1. Clear communication of the idea
  2. Discussion of the idea
  3. Implementation of the idea

- **A Chapel Improvement Proposal is:**
  - a way to record an idea to aid its progress through these steps
  - a lightweight document
  - a place to record the progress of an idea

# CHIPs: Impact, Status, and Next Steps

## Impact:

- Project can confidently separate ideas from implementation
- Ideas will not be lost to history

## Status:

- CHIPs stored in doc/chips in the Chapel git repository
- Examples of current CHIPs:
  - Chapel Improvement Proposals
  - Constrained Generics
  - ZeroMQ Integration
  - Constructor Syntax and Semantics
  - Implementing Object Copying
  - Tuple Semantics

## Next Steps:

- Further develop CHIP decision-making process
- Create new CHIPs; complete existing CHIPs

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