



# iRODS

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## 4.1

iRODS User Group Meeting

June, 2015

Chapel Hill, NC

Jason Cposky, Chief Technologist



Last Year

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Enterprise iRODS 3.0.1

iRODS Consortium Release 4.0

Community iRODS 3.3.1

# iRODS Consortium Release 4.1

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Focus on Hardening

Focus on Enterprise Readiness

Membership and Community Requests

# Hardening

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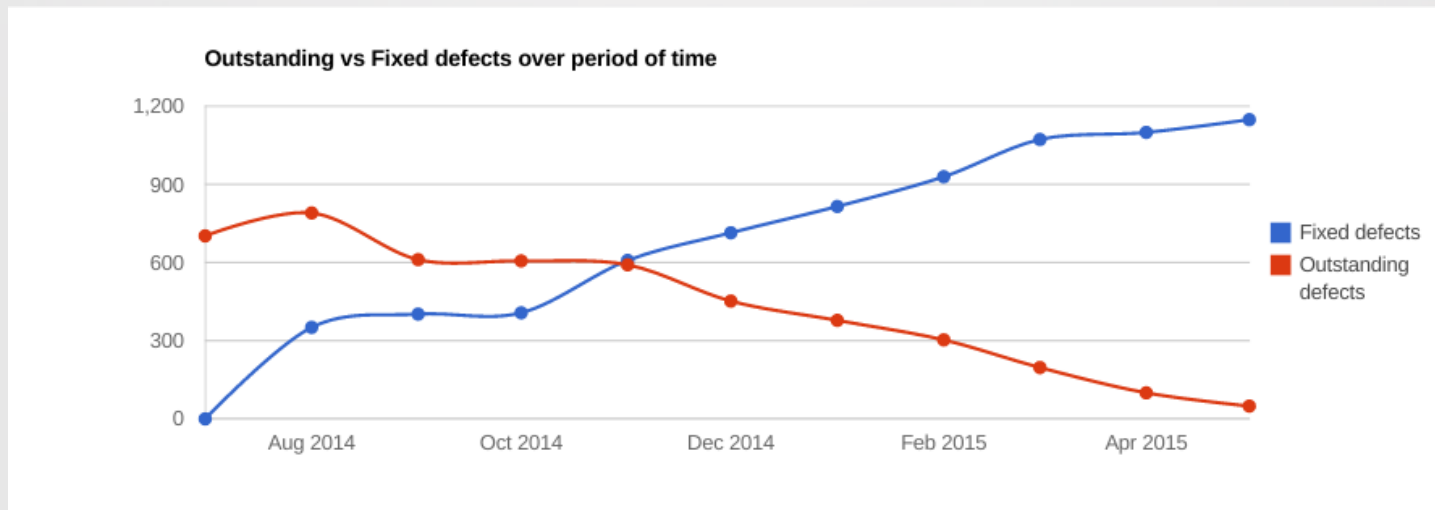
Static Analysis

Membership and Community Input

General Improvements

# Hardening - static analysis

- Fixed nearly 1200 Coverity issues in iRODS and external libraries
  - Now down to zero issues in iRODS and libraries
  - Includes Buffer Overruns, Null pointer dereferences, use of uninitialized variables
- Continuously keep Coverity, cppcheck and STACK clean



# Hardening - community input

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## 192 Bugs closed

- Many permission inconsistencies ironed out
- Parallel transfer works in multi-homed networks
- irsync sending only updated files
- Zip files available viaibun
- Zero-length file behavior is consistent
- Delayed rules running correctly

# Hardening - general improvements

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- Push the plugin architecture farther into the API
- Move magic numbers to run-time configuration
- Removed built-in PostgreSQL DB Vacuum functionality
- Removed boot user from install script
- Removed "run\_server\_as\_root" option
- Removed roles for storageadmin, domainadmin, and rodscurators
- Removed obfuscation (SIDKey and DBKey)



# Enterprise Readiness

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Move configuration to validated JSON

Zone Introspection

Grid-wide control plane

New Client-Hints API



# Enterprise Readiness - configuration

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New schema-driven validated JSON configuration files include

- server\_config.json
- database\_config.json
- irods\_environment.json
- host\_access\_control\_config.json
- hosts\_config.json

Automatically generated on upgrade from 4.0.3

# Enterprise Readiness - zone report

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A step towards configuration management for iRODS deployments

Generates a validated JSON document describing every server in the Zone

- Sanitized snapshots of all json configuration files
- Listing of all installed plugins with checksums
- Listing of all configured resources
- Contents of rule files in base64 encoding

Leveraged by Consortium CI for deployment and testing of topologies

# Enterprise Readiness - control plane

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Side channel for communication directly with the iRODS Server

Per-server or grid-wide operations

- Status information - validated JSON containing connections, pids, server state
- Gracefully Pause and Resume
- Gracefully Shut Down

## Enterprise Readiness - client hints

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New API call - communicate Server configuration information to the Client

Validated JSON document containing

- Strict ACL setting
- Desired hash-scheme
- Match hash-scheme policy
- Listing of installed specific queries

Will track iRODS schema versions and grow over time

# Membership and Community Requests

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Put with atomic metadata

Key-Value Passthrough for iput and iget

Zero Length files now trigger resource hierarchy behavior

Weighted Passthru Resource Plugin

# Requests - zero length files

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Zero Length files now trigger Resource Composition behavior

- replication - Compound & Replication Resources

# Requests - iput and iget

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## iput now supports two new options

- --metadata - atomically assign metadata after data is at rest and registered
  - Encoded in the form "attr1;val1;unit1;attr2;val2;unit2;"
- --acl - atomically assign ACLs after data is at rest and registered
  - Encoded as "<perm> <user\_or\_group>;..."

## iput and iget now support a new option

- --kv\_pass - pass key-value strings through to the resource hierarchy
  - Encoded in the form "key1=value1;key2=value2"

# Requests - weighted passthru plugin

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Passthru Coordinating Resource now supports weights for read and write operations

- Multiplier for votes of the child resource
- Use to influence the behavior of Resource Composition
  - Create a read-only resource
  - Create a write-only resource
  - Programmatically redirect reads or writes based on system behavior
- Floating point values
- Set in the context string of the form `read=1.1;write=0.5`





Questions?

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